SENTRY SOFTWARE

Dell Compellent Enterprise Manager ETL for BMC Capacity Optimization

Version 4.0.00

BCO CONNECTOR Storage Monitoring for BMC CAPACITY Optimization

DELL

User Documentation

May 2014

BMC SOFTWARE VALIDATED MARKETZONE

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Introduction

Release Notes v4.0.00

Changes and Improvements

- The volume discovery has been improved in order to avoid 'NullPointerException' exception upon volume discovery.

Fixed Issues

- Summarized information about the loading execution in BCO is now displayed in the Run History of the ETL task.
- The local store internal version is now properly displayed in connector's log.
- The Service ETL loader log level was too high, causing an unexpected growth in the scheduler output.
- Error handling and log tracing has been significantly improved to allow the ETL to keep on performing when an error occurs in a request resolution.
- The ETL can now collect statistical information when there is a time difference between Dell Compellent Enterprise Manager and the scheduler.

Support Information

You can obtain technical support by using the Support page on the BMC Software Web site or by contacting Customer Support by telephone or email.

Support Web Site

You can obtain technical support from BMC Software 24 hours a day, 7 days a week at http://www.bmc.com/support/. From this Web site, you can:

- Read overviews about support services and programs that BMC Software offers
- Find the most current information about BMC Software products
- Search a database for problems similar to yours and possible solutions
- Order or download product documentation
- Report a problem or ask a question
- Subscribe to receive email notices when new product versions are released
- Find worldwide BMC Software support center locations and contact information, including email addresses, fax and telephone numbers

Support by Telephone or Email

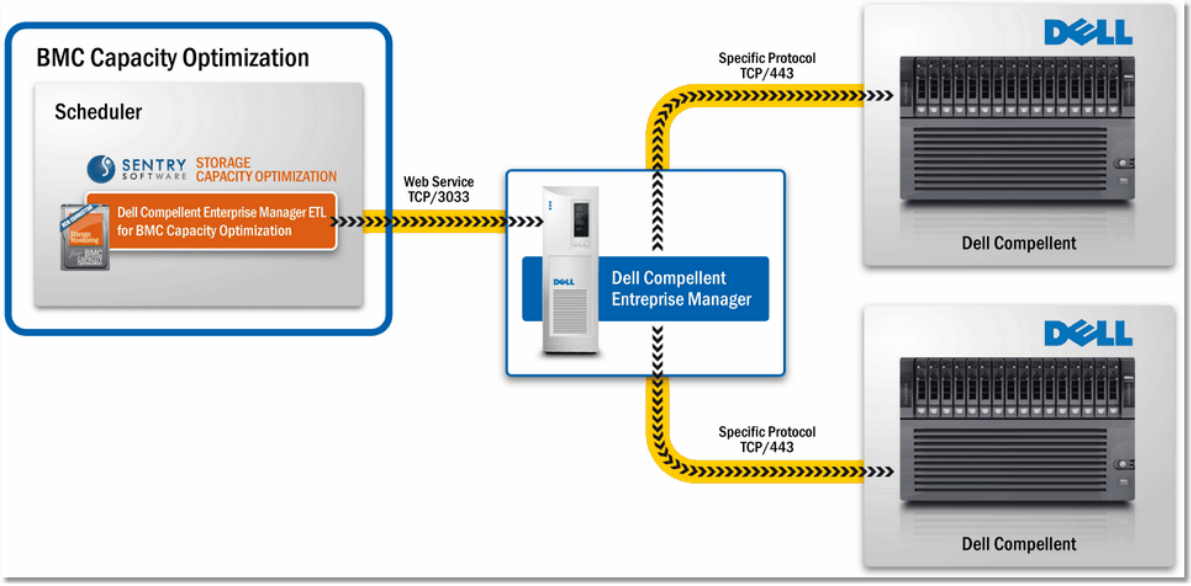
In the United States and Canada, if you need technical support and do not have access to the Web, call 800 537 1813. Outside the United States and Canada, please contact your local support center for assistance. To find telephone and email contact information for the BMC Software support center that services your location, refer to the Contact Customer Support section of the Support page on the BMC Software Web site at http://www.bmc.com/support/.

Additional Resources

You can also access product documents and search the Knowledge Base for help with an issue at http://www.sentrysoftware.com.

Overview

Dell Compellent Enterprise Manager ETL for BMC Capacity Optimization is a connector specifically designed for BMC Capacity Optimization and can be defined as an ETL Service, named **Sentry Software Integration for BCO - Dell Compellent Enterprise Manager Extractor Service**, that continuously polls and collects data from Dell Compellent Enterprise Manager. Once an ETL Service is started, it runs continuously on BMC Capacity Optimization. Once properly configured, the Dell Compellent Enterprise Manager Extractor Service task collects all the metrics required for performing critical capacity optimization tasks, such as: analysis, trending, simulation and analytic modeling.



Dell Compellent Enterprise Manager ETL for BMC Capacity Optimization Architecture Diagram

Getting Started

Supported Platforms and Versions

Supported Dell Compellent Storage Centers

Dell Compellent Enterprise Manager ETL for BMC Capacity Optimization supports any Dell Compellent Storage Centers compatible with Dell Compellent Enterprise Manager 6.3.

Supported versions of BMC Capacity Optimization

Dell Compellent Enterprise Manager ETL for BMC Capacity Optimization requires BMC Capacity Optimization v9.5 or higher.

Getting the Installation Package

The installation package for Dell Compellent Enterprise Manager ETL for BMC Capacity Optimization can be downloaded from the Sentry Software Web site:

- Dell-Compellent-Enterprise-Manager-ETL-for-BCO-4.0.00.zip

The file can be saved on any server accessible via the BCO Console.

Before you can install Dell Compellent Enterprise Manager ETL for BMC Capacity Optimization you must have previously installed and configured BMC Capacity Optimization. Please refer to the documentation provided by BMC for further information about the BMC Capacity Optimization installation and configuration procedures.

Dell Compellent Enterprise Manager

Dell Compellent Enterprise Manager allows you to monitor, manage, and analyze Storage Centers from a centralized management console. It consists of the following components:

- **Data Collector**: Data Collector is a service that gathers reporting data and alerts from all Storage Centers. There are two types of Data Collectors: Primary and Remote. All installations must include one primary Data Collector. Each Data Collector service (primary or remote) is managed using a Data Collector Manager.
- **Database**: Data Collector stores data in a database or flat file. The database can run on the same or a different platform from Data Collector.
- **Enterprise Manager Clients**: An Enterprise Manager Client connects to the Data Collector Service to provide a centralized management console for one or more Storage Centers. Additional clients can be connected to the same Data Collector Service to provide management from more than one location.
- **Server Agents**: By installing a Server Agent for Microsoft Windows on each Windows server using a Storage Center, Data Collector can gather local volume information from a Windows server. Using this information, Enterprise Manager can free volume storage space from expired Replays that would otherwise remain locked by Windows. Each Server Agent is managed by a Server Agent Manager.

This guide describes how to install and configure Enterprise Manager components. For more information, please refer to the Dell Compellent Enterprise Manager documentation.

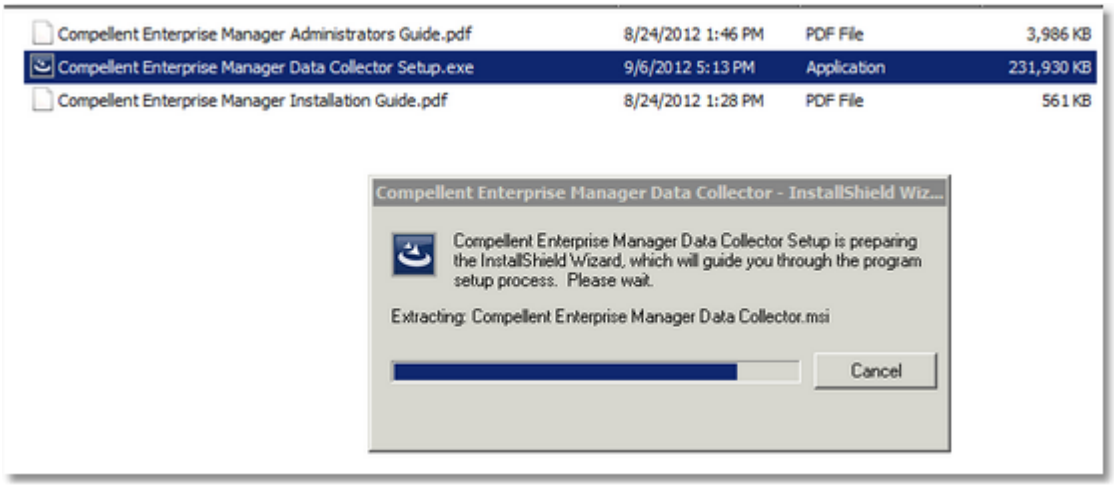
Requirements

Dell Compellent Enterprise Manager requires Java Runtime Environment (JRE) 1.6 or higher (1.6 Update 30 or higher recommended). On 64-bit systems both the 32-bit and the 64-bit JRE are required.

Installing Enterprise Manager Data Collector

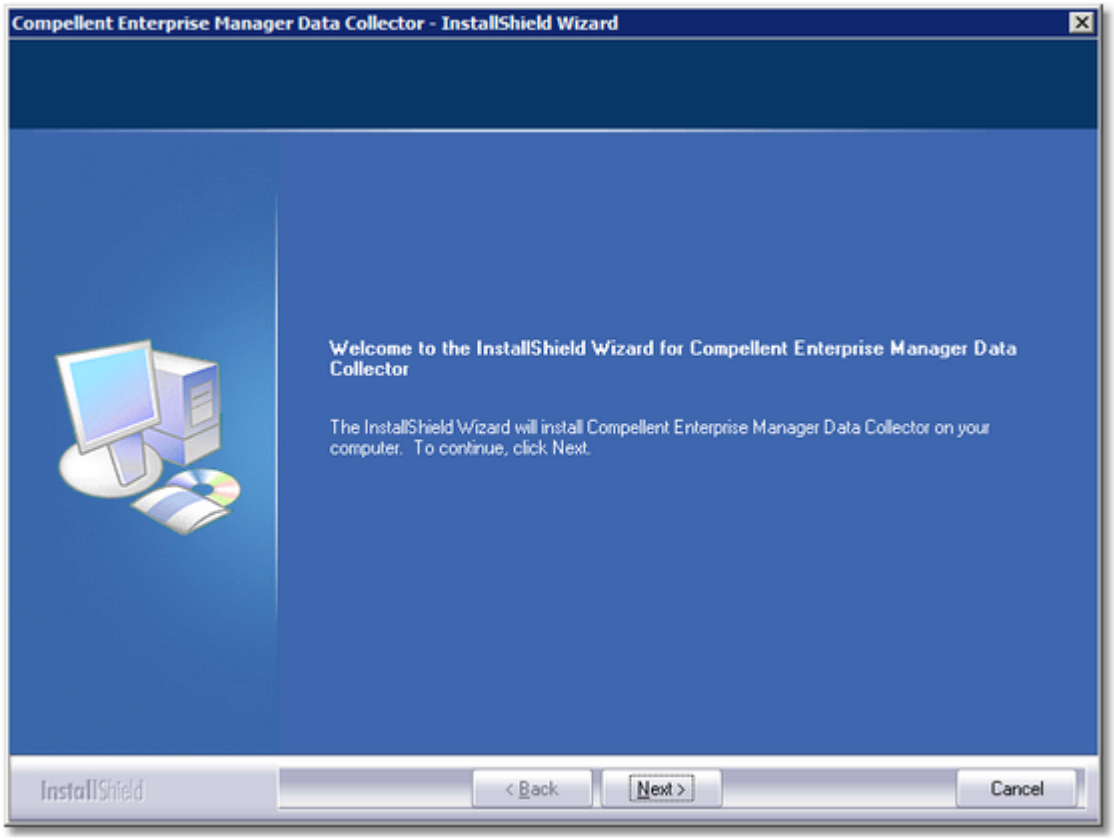
To install Enterprise Manager Data Collector:

1. Download the Enterprise Manager Data Collector software:
   - Go to the Dell Compellent Support Home Page.
   - Log on to the customer or partner portal.
   - Click **Knowledge Center**, then download the Enterprise Manager Data Collector Setup file
2. Run **Compellent Enterprise Manager Data Collector Setup.exe**.


Compellent Enterprise Manager Administrators Guide.pdf
8/24/2012 1:46 PM
PDF File
3,986 KB
Compellent Enterprise Manager Data Collector Setup.exe
9/6/2012 5:13 PM
Application
231,930 KB
Compellent Enterprise Manager Installation Guide.pdf
8/24/2012 1:28 PM
PDF File
561 KB
Compellent Enterprise Manager Data Collector - InstallShield Wiz...
Compellent Enterprise Manager Data Collector Setup is preparing the InstallShield Wizard, which will guide you through the program setup process. Please wait.
Extracting: Compellent Enterprise Manager Data Collector.msi
Cancel

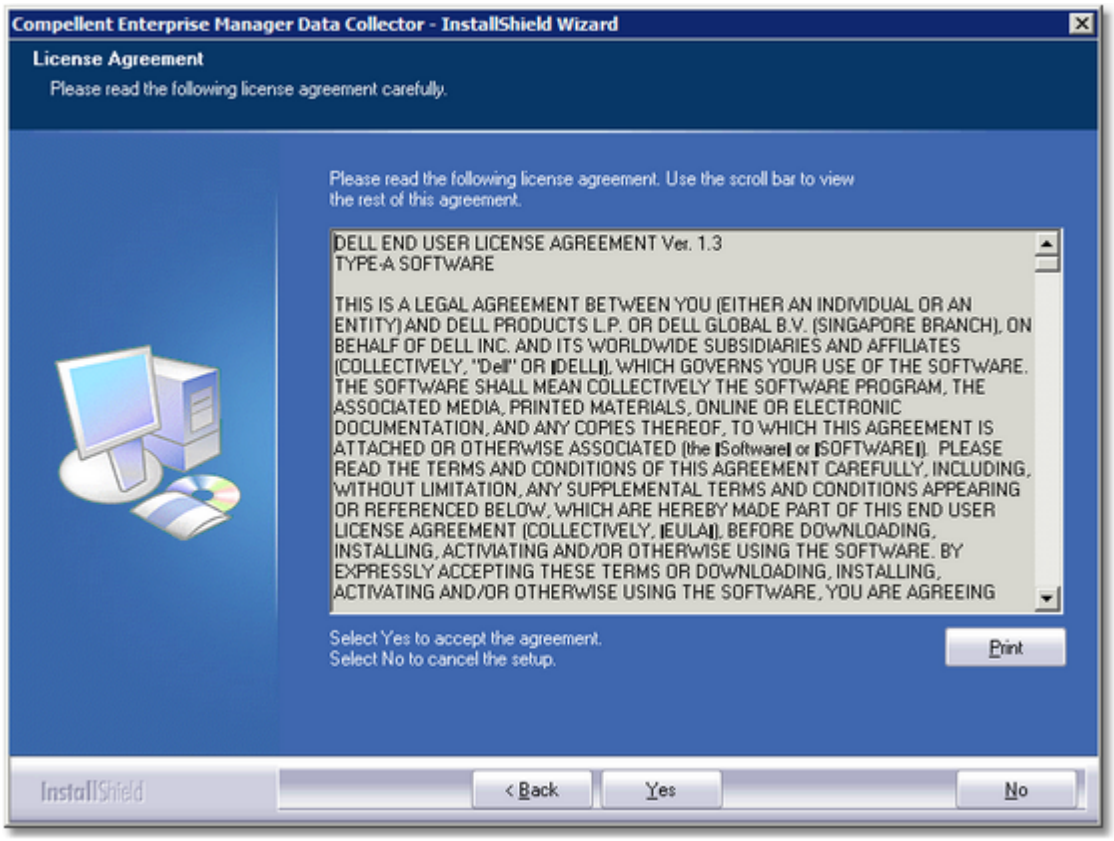
Installing Enterprise Manager Data Collector - Setup File

3. Click **Next**.


Compellent Enterprise Manager Data Collector - InstallShield Wizard
Welcome to the InstallShield Wizard for Compellent Enterprise Manager Data Collector
The InstallShield Wizard will install Compellent Enterprise Manager Data Collector on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

Installing Enterprise Manager Data Collector - Welcome

4. Click **Yes** to accept the license agreement and launch the installation.


Compellent Enterprise Manager Data Collector - InstallShield Wizard
License Agreement
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Please read the following license agreement. Use the scroll bar to view the rest of this agreement.
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TYPE-A SOFTWARE
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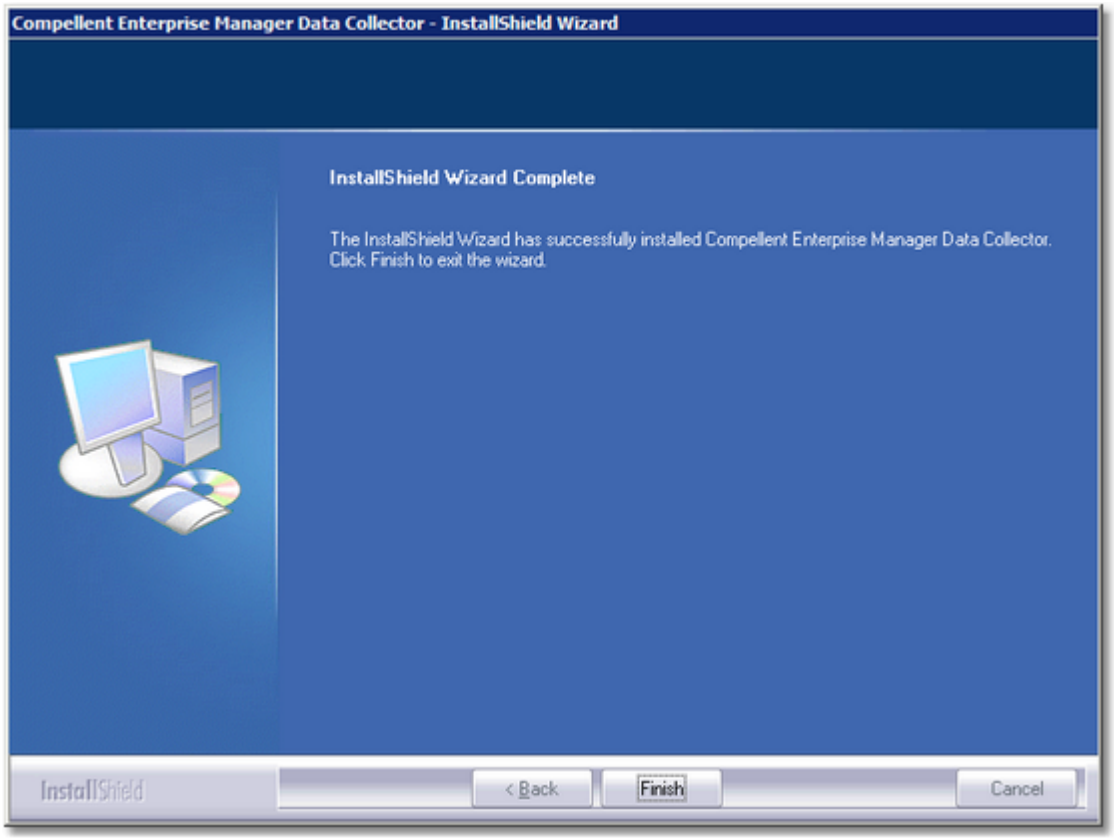
Select Yes to accept the agreement.
Select No to cancel the setup.
Print
InstallShield
< Back
Yes
No

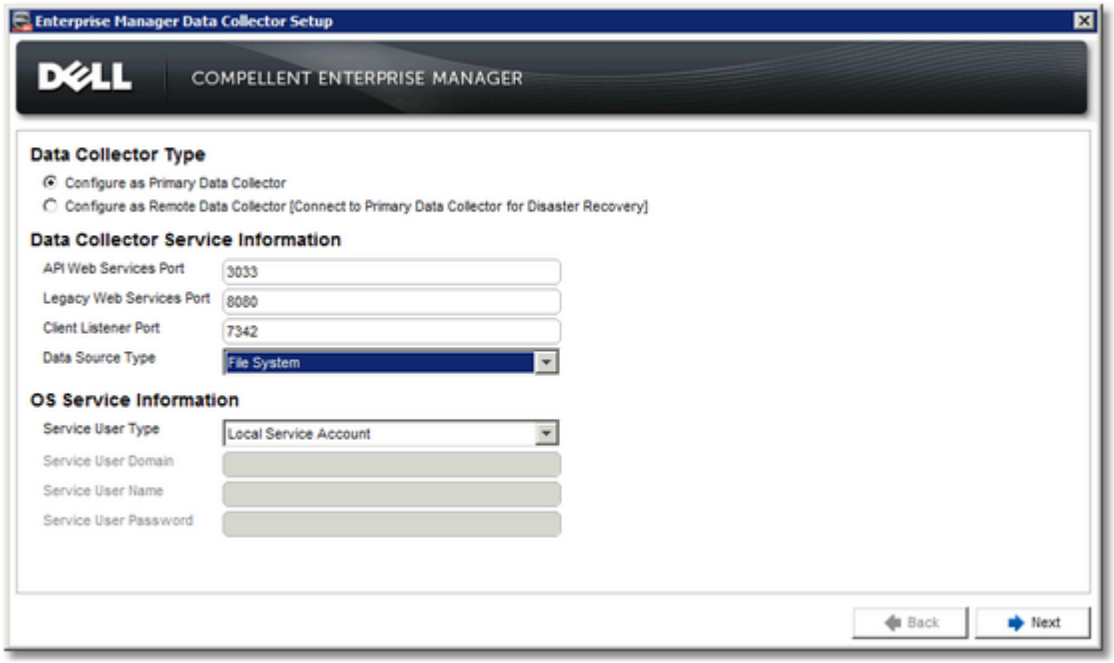
Installing Enterprise Manager Data Collector - License Agreement

5. Once the installation is complete, click **Finish**.


Compellent Enterprise Manager Data Collector - InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed Compellent Enterprise Manager Data Collector. Click Finish to exit the wizard.
InstallShield
< Back
Finish
Cancel

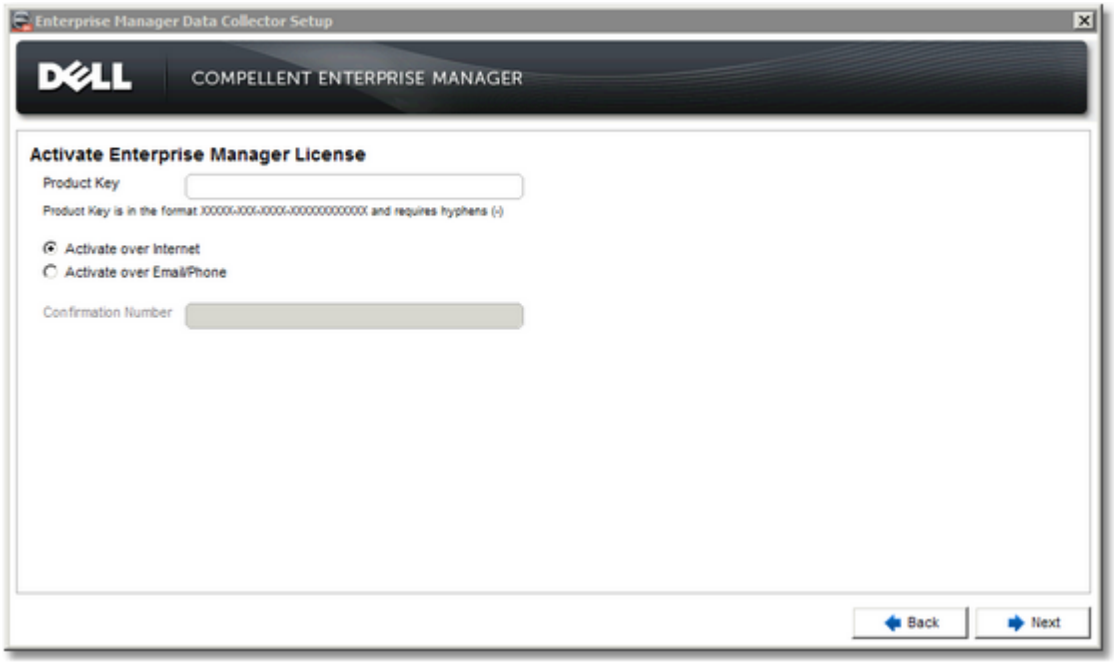
Installing Enterprise Manager Data Collector - Installation Complete

6. Configure Enterprise Manager Data Collector:
   - Select **Configure as Primary Data Collector**
   - Set the Data Collector Service and OS Service Information
   - Click **Next**.



Installing Enterprise Manager Data Collector - Configuration

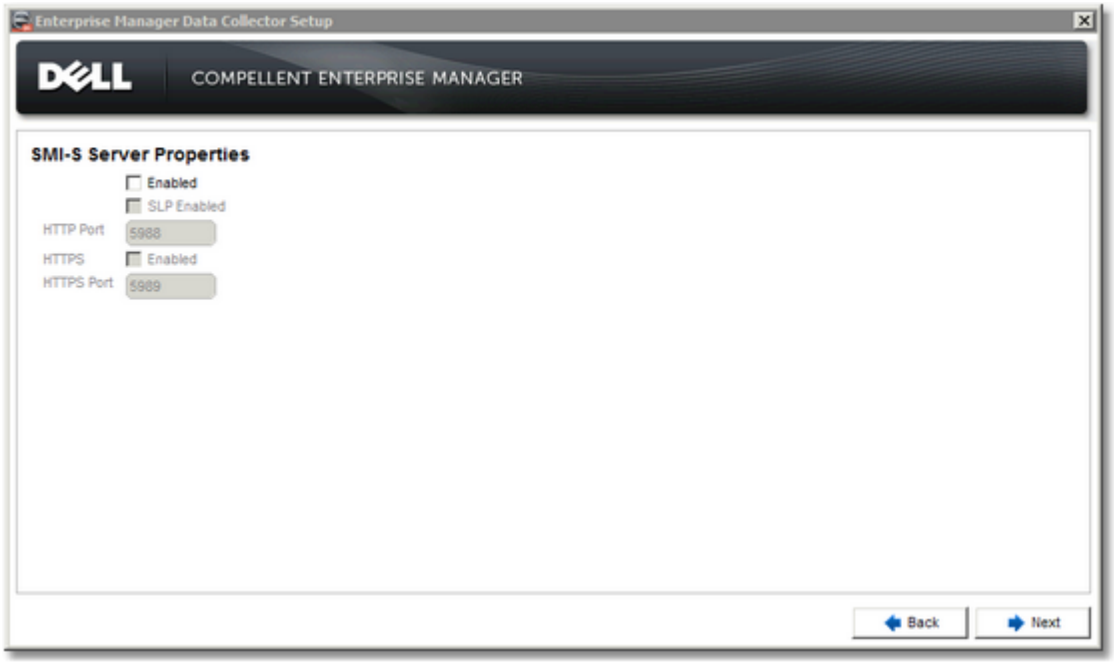
7. Enter the **Product Key**, choose whether you want to activate your license over Internet or over Email/Phone, and click **Next**.



Installing Enterprise Manager Data Collector - License Activation

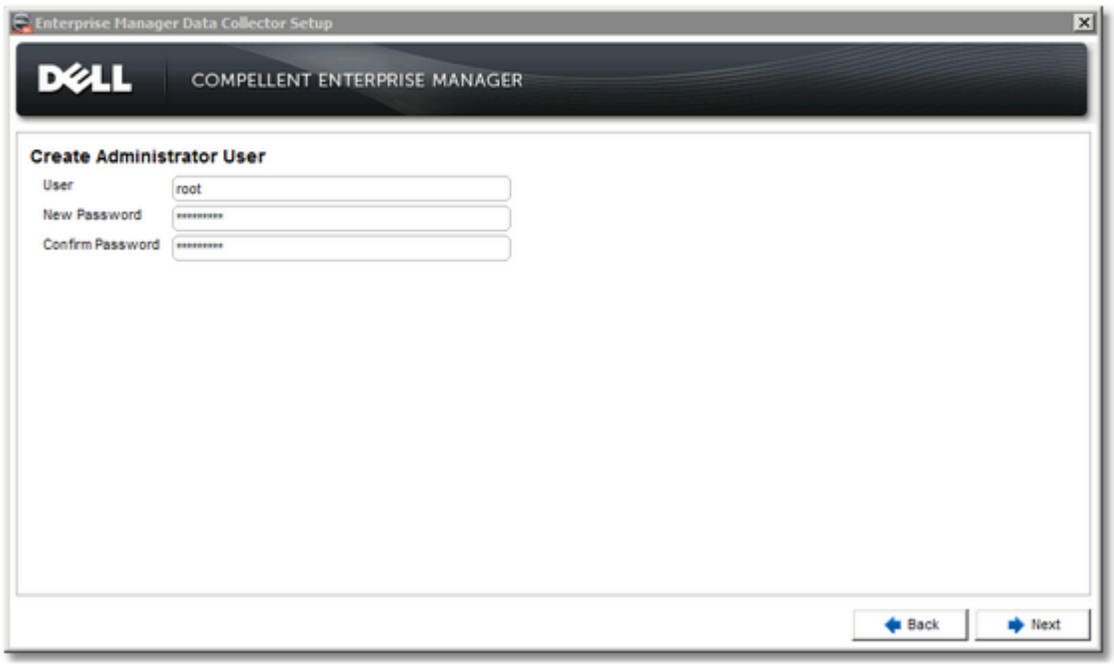
Data collector can be used for 30 days without activation.

8. Since Dell Compellent Enterprise Manager ETL for BMC Capacity Optimization leverages the Dell Compellent API, there's no need to enable the SMI-S Server. Leave the fields blank and click **Next**.



Installing Enterprise Manager Data Collector - SMI-S Server Properties

9. Create the **Administrator User** that will be used to log on to the Enterprise Manager and click **Next**.



Installing Enterprise Manager Data Collector - Administrator User

10. The Enterprise Manager Data Collector setup is now complete. Click the URL to go to the Data Collector Website. Click **Finish**.

Installing Enterprise Manager Data Collector - Setup Complete

Installing Enterprise Manager Client

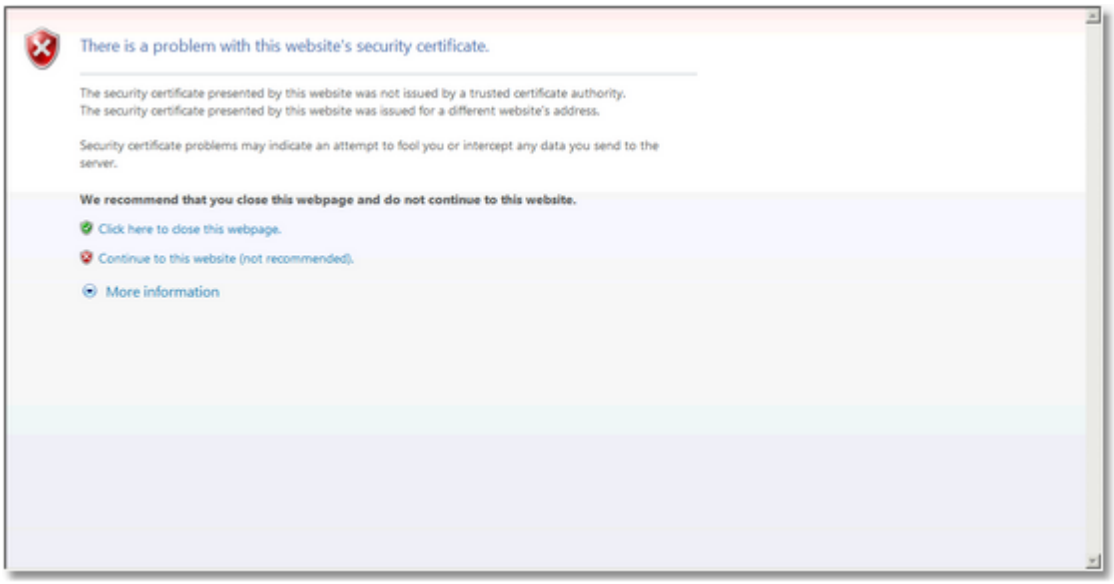
The Enterprise Manager Client is a Windows application that connects to the Data Collector, allowing you to view and manage multiple Storage Centers. You can install the client on the Data Collector server or a computer that has network connectivity to the Data Collector server.

To install Enterprise Manager Client:

1. Go to **Data Collector Website**. The default location for the website is: https://<emdc_hostname_ip>:<emdc_web_server_port> where:
   - <emdc_hostname_ip> is the host name or IP address of the server that hosts the Data Collector.
   - <emdc_web_server_port> is the Data Collector web service port; the default port is 3033.

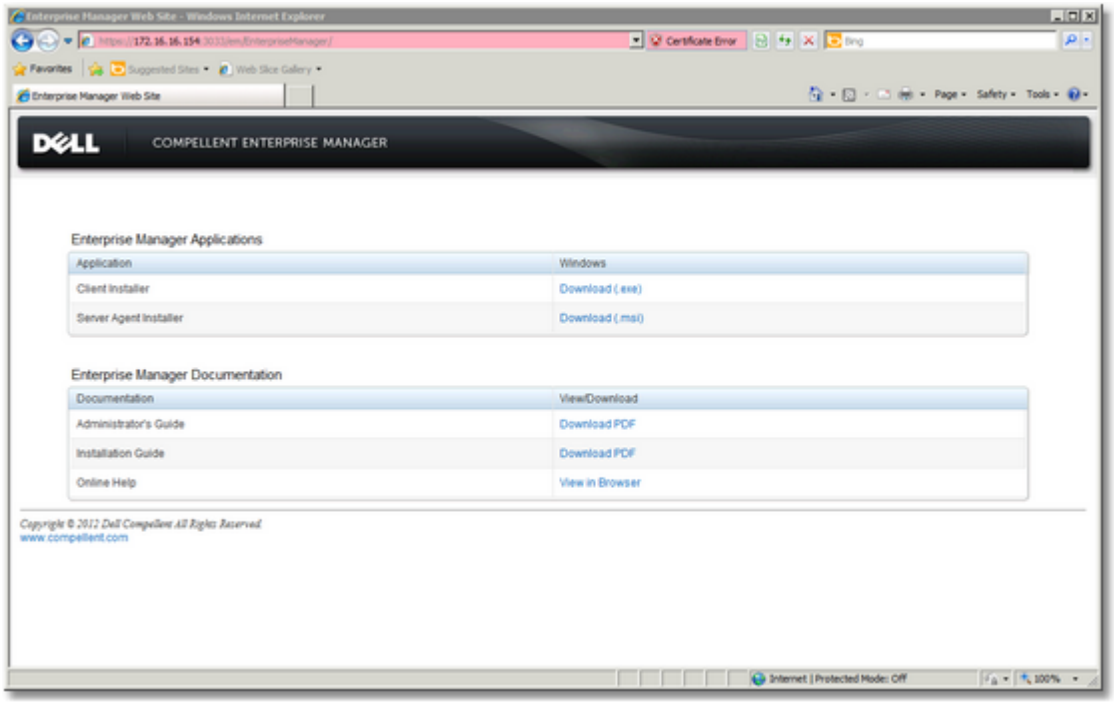
The URL of the Data Collector Website is displayed in the Enterprise Manager Data Collector wizard when the installation is complete.

- Click **Continue to this website**.


There is a problem with this website's security certificate.
The security certificate presented by this website was not issued by a trusted certificate authority.
The security certificate presented by this website was issued for a different website's address.
Security certificate problems may indicate an attempt to fool you or intercept any data you send to the server.
We recommend that you close this webpage and do not continue to this website.
Click here to close this webpage.
Continue to this website (not recommended).
More information

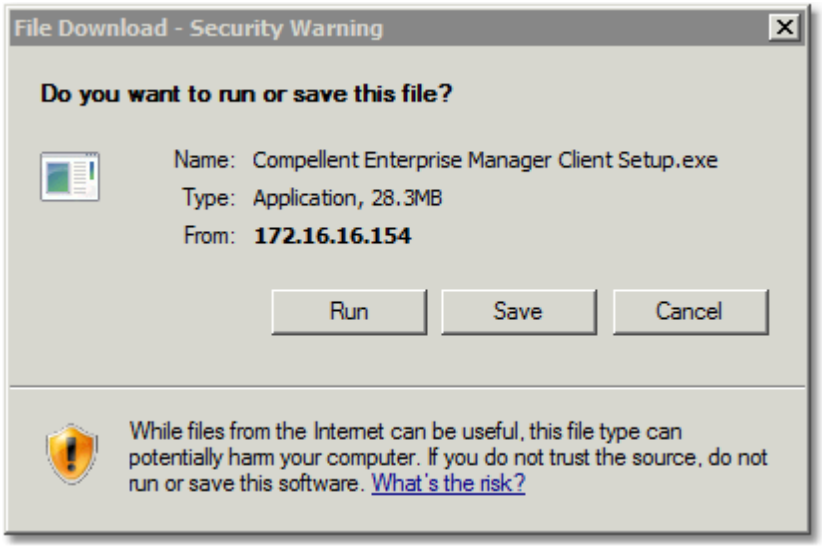
Installing the Enterprise Manager Client - Security Certificate

2. Download the **Client Installer**



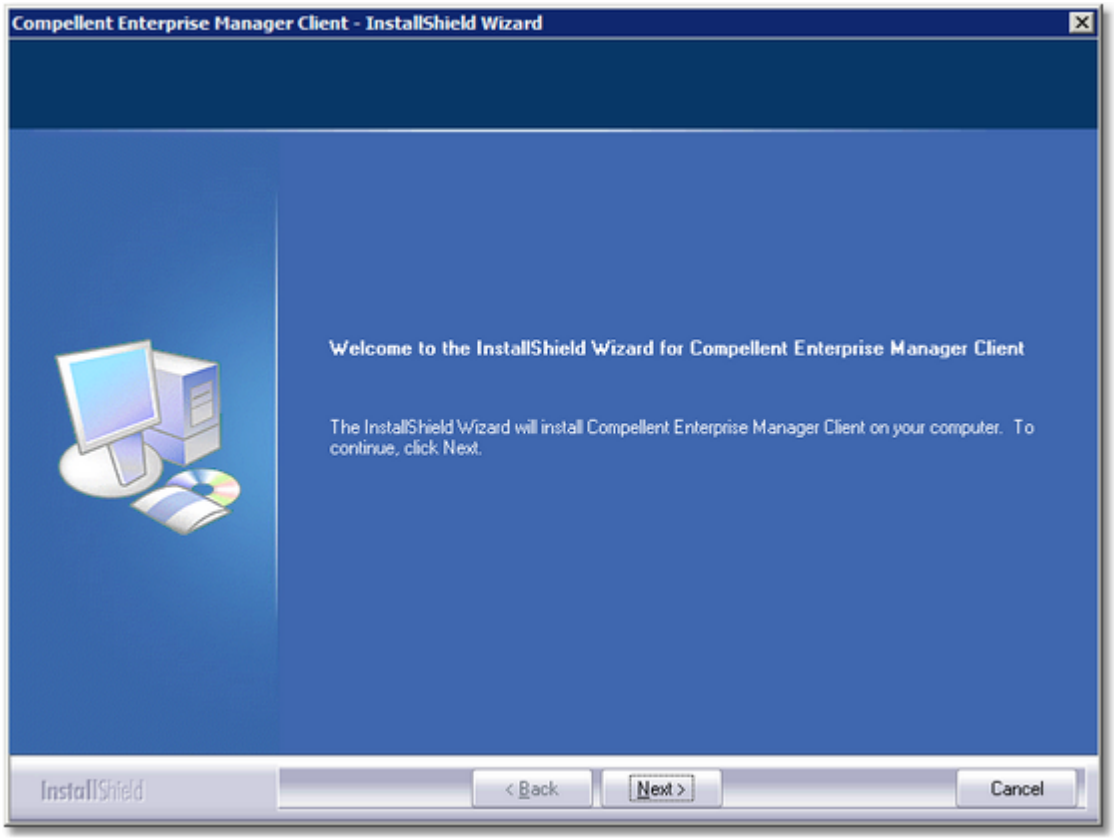
Installing the Enterprise Manager Client - Download

3. When the download is complete, double-click the downloaded file.
4. A Security Warning dialog box appears. Click **Run** to start the installation.


File Download - Security Warning
Do you want to run or save this file?
Name: Compellent Enterprise Manager Client Setup.exe
Type: Application, 28.3MB
From: 172.16.16.154
Run
Save
Cancel
While files from the Internet can be useful, this file type can potentially harm your computer. If you do not trust the source, do not run or save this software. What's the risk?

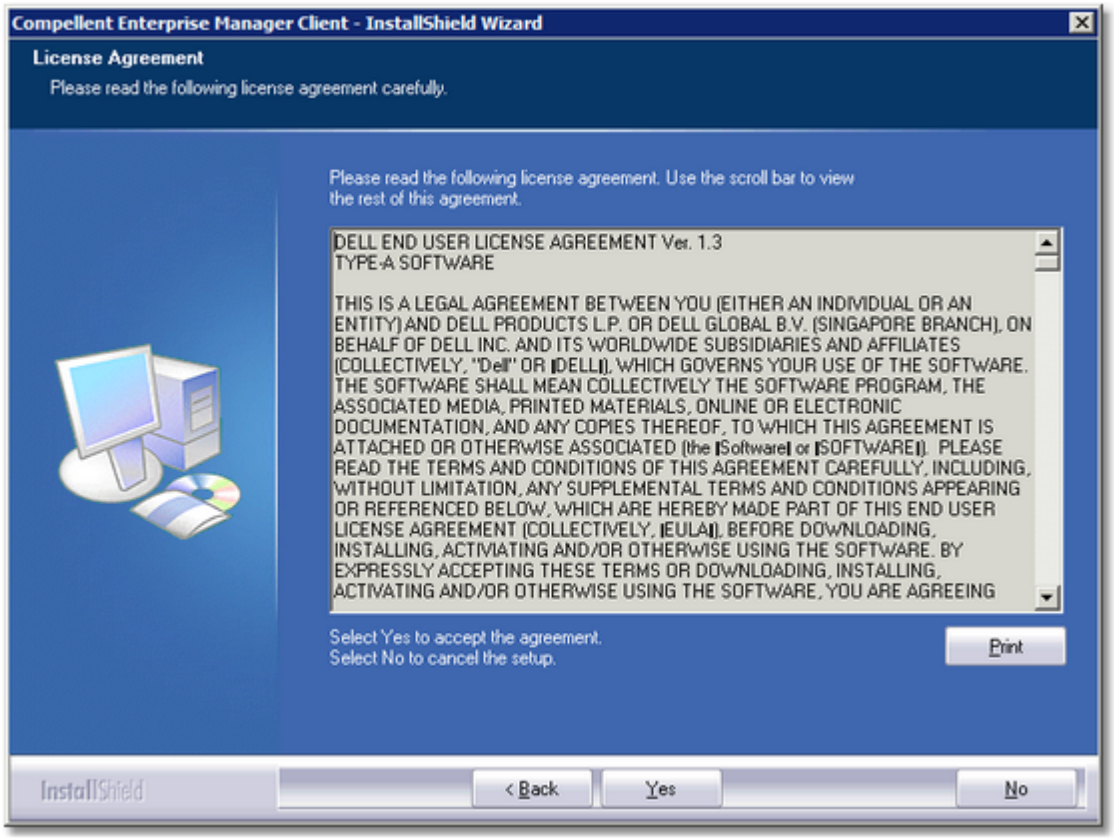
Installing the Enterprise Manager Client - Security Warning

5. Click **Next**.


Compellent Enterprise Manager Client - InstallShield Wizard
Welcome to the InstallShield Wizard for Compellent Enterprise Manager Client
The InstallShield Wizard will install Compellent Enterprise Manager Client on your computer. To continue, click Next.
InstallShield
< Back
Next >
Cancel

Installing the Enterprise Manager Client - Welcome

6. Click **Yes** to accept the license agreement and start the installation.


Compellent Enterprise Manager Client - InstallShield Wizard
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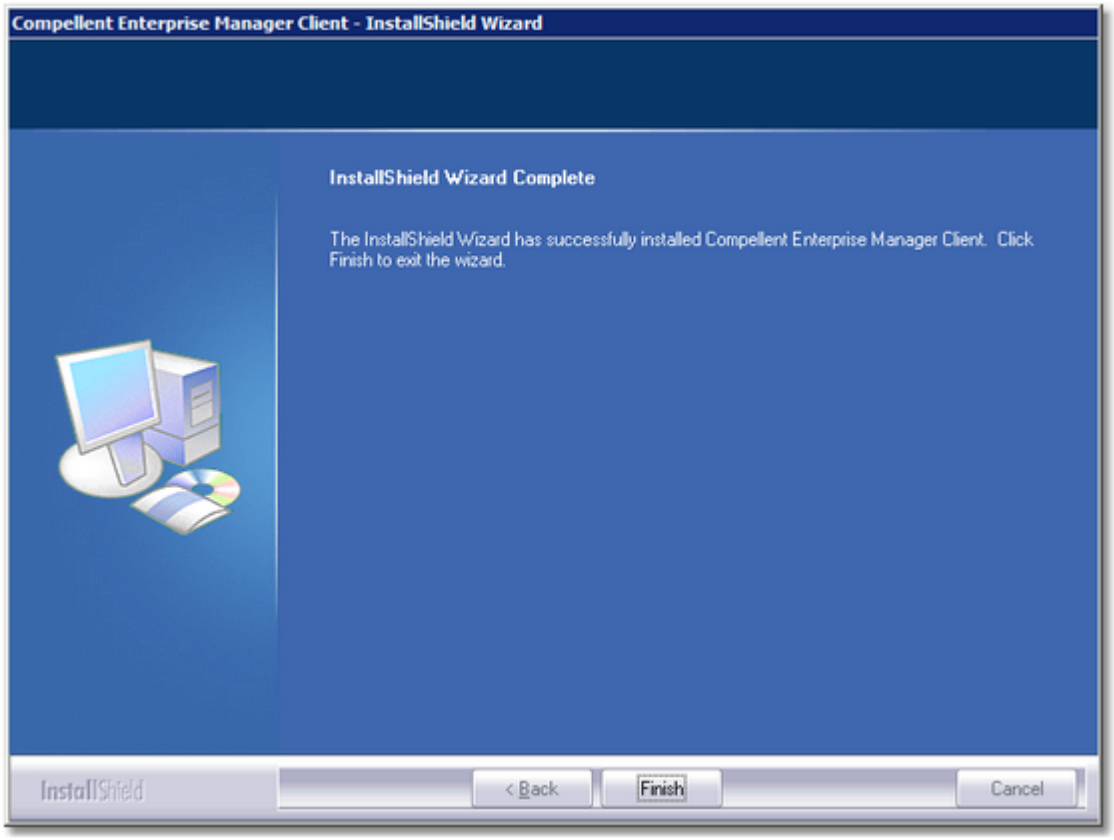
Select Yes to accept the agreement.
Select No to cancel the setup.
Print
InstallShield
< Back
Yes
No

Installing the Enterprise Manager Client - License Agreement

7. Click **Finish**.


Compellent Enterprise Manager Client - InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed Compellent Enterprise Manager Client. Click Finish to exit the wizard.
InstallShield
< Back
Finish
Cancel

Installing the Enterprise Manager Client - Installation Complete

The Enterprise Manager icon appears on the desktop.

Installing Enterprise Manager Server Agent

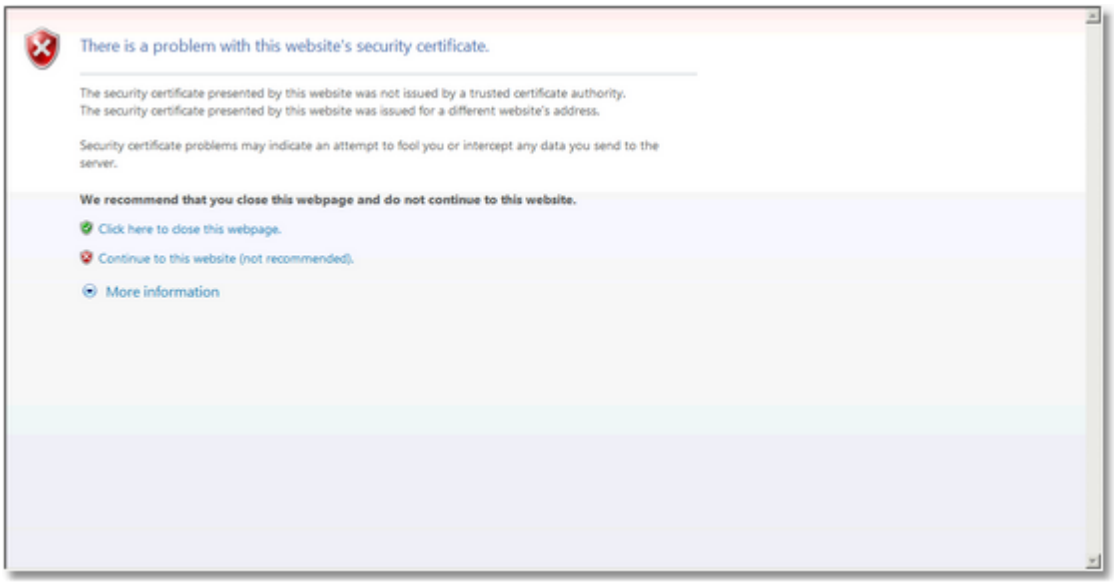
The Enterprise Manager Server Agent is a service for Windows that allows you to see server information, recover unused storage space from Windows NTFS, and monitor and control Dell Compellent NAS and zNAS servers.

To install Enterprise Manager Server Agent:

1. Go to **Data Collector Website**. The default location for the website is: https://<emdc_hostname_ip>:<emdc_web_server_port> where:
   - <emdc_hostname_ip> is the host name or IP address of the server that hosts the Data Collector.
   - <emdc_web_server_port> is the Data Collector web service port; the default is 3033.

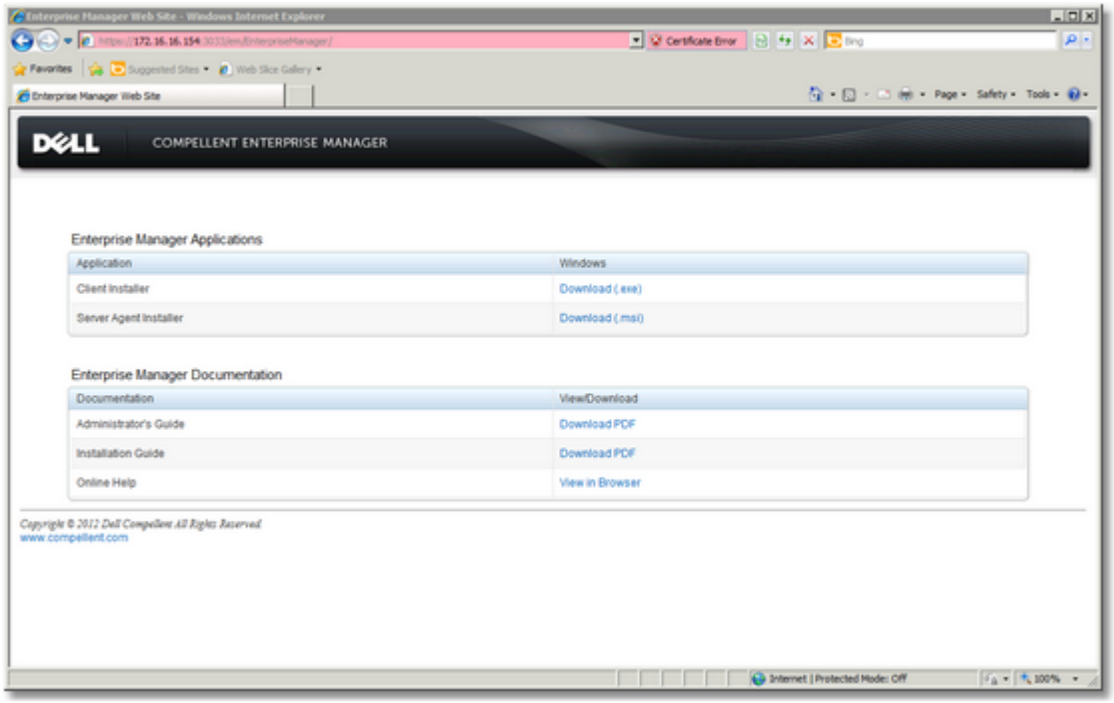
The URL of the Data Collector Website is displayed in the Enterprise Manager Data Collector wizard when the installation is complete.

- Click **Continue to this website**.


There is a problem with this website's security certificate.
The security certificate presented by this website was not issued by a trusted certificate authority.
The security certificate presented by this website was issued for a different website's address.
Security certificate problems may indicate an attempt to fool you or intercept any data you send to the server.
We recommend that you close this webpage and do not continue to this website.
Click here to close this webpage.
Continue to this website (not recommended).
More information

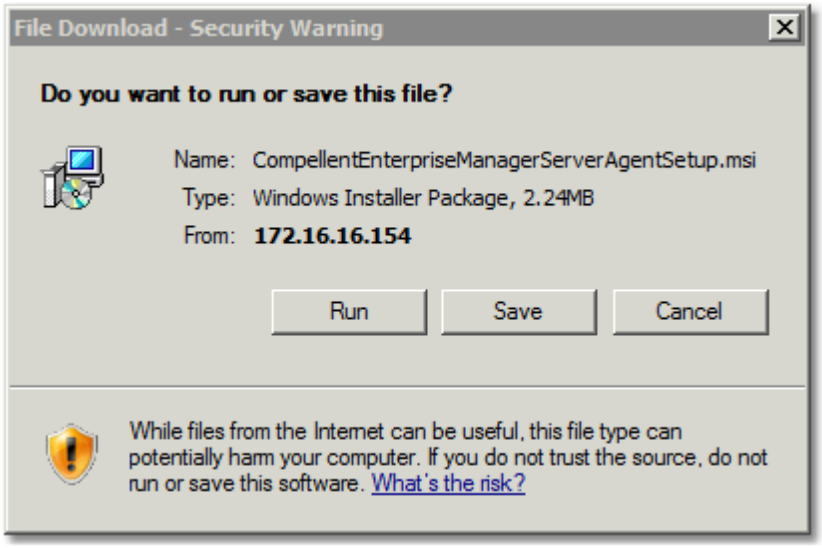
Installing the Server Agent - Security Certificate

2. Download the **Server Agent Installer**.



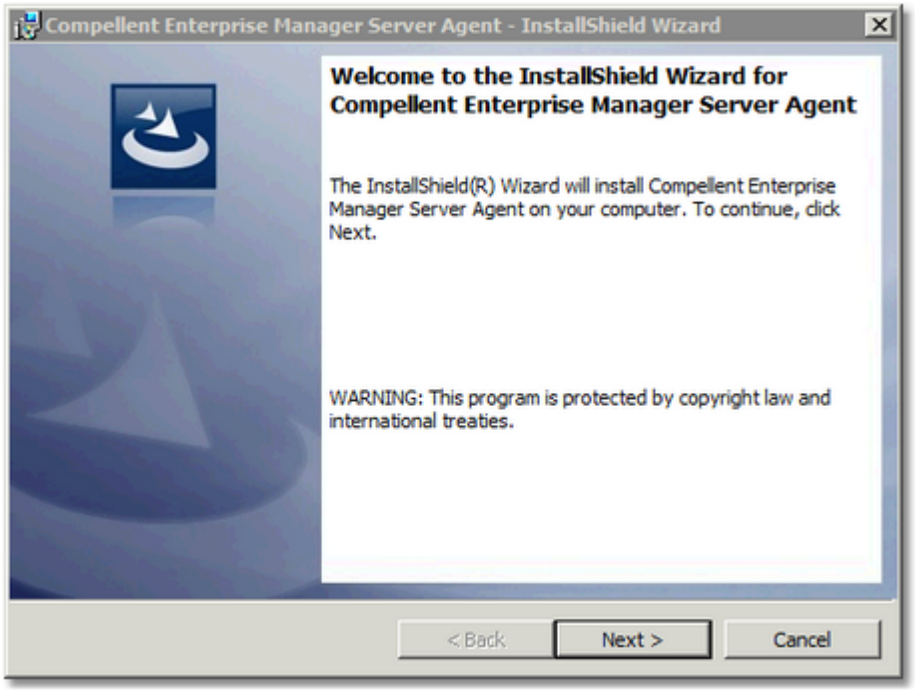
Installing the Server Agent - Download

3. When the download is complete, double-click the downloaded file.
4. A Security Warning dialog box appears. Click **Run**.


File Download - Security Warning
Do you want to run or save this file?
Name: CompellentEnterpriseManagerServerAgentSetup.msi
Type: Windows Installer Package, 2.24MB
From: 172.16.16.154
Run
Save
Cancel
While files from the Internet can be useful, this file type can potentially harm your computer. If you do not trust the source, do not run or save this software. What's the risk?

Installing the Server Agent - Security Warning

5. Click **Next**.


Compellent Enterprise Manager Server Agent - InstallShield Wizard
Welcome to the InstallShield Wizard for Compellent Enterprise Manager Server Agent
The InstallShield(R) Wizard will install Compellent Enterprise Manager Server Agent on your computer. To continue, click Next.
WARNING: This program is protected by copyright law and international treaties.
< Back
Next >
Cancel

Installing the Server Agent - Welcome

6. Select **I Accept the terms in the license agreement** and click **Next**.

Compellent Enterprise Manager Server Agent - InstallShield Wizard
License Agreement
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TYPE-A SOFTWARE
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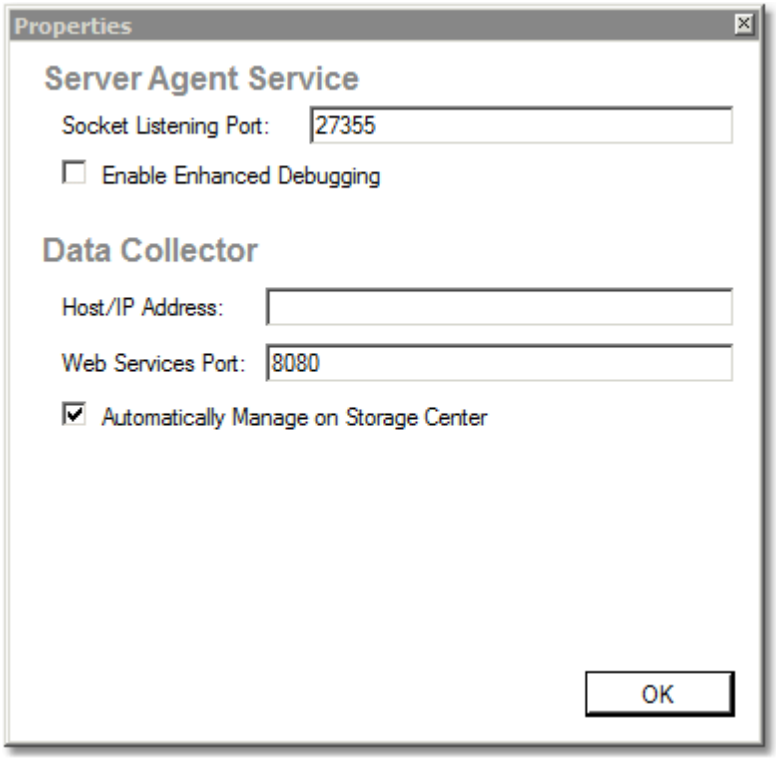
I accept the terms in the license agreement
I do not accept the terms in the license agreement
Print
InstallShield
< Back
Next >
Cancel

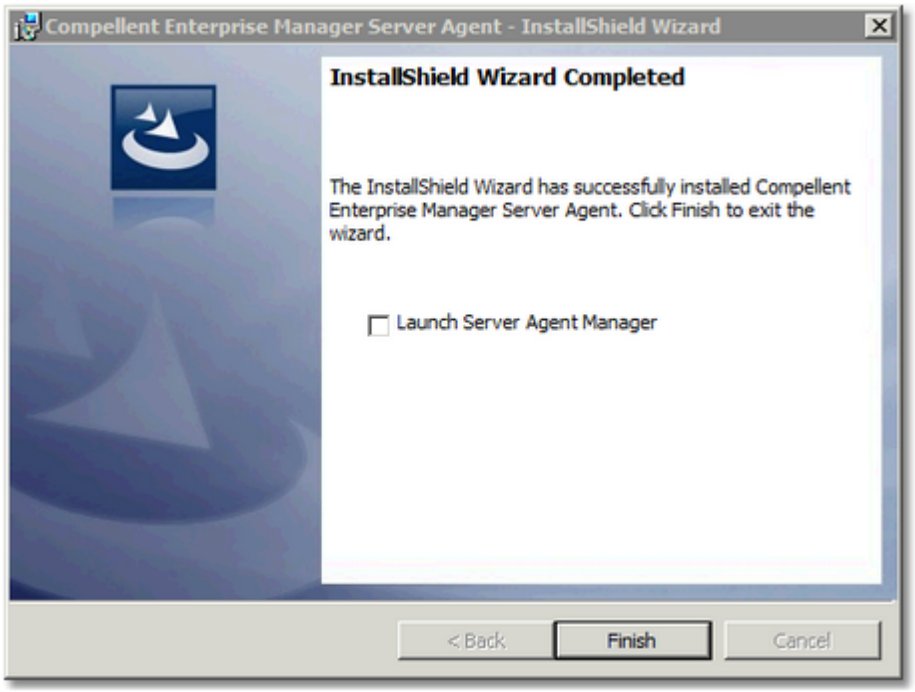
Installing the Server Agent - License Agreement

7. Register the Server Agent with Enterprise Manager Data Collector:
   - Enter the socket listening port. By default, 27355
   - Enter the host name or IP address of the Data Collector
   - Enter the web services port. By default, 8080
   - Check the box **Automatically Manage on Storage Center**
   - Click **OK**.



Installing the Server Agent - Properties

8. Once the installation is complete, click **Finish**.


Compellent Enterprise Manager Server Agent - InstallShield Wizard
InstallShield Wizard Completed
The InstallShield Wizard has successfully installed Compellent Enterprise Manager Server Agent. Click Finish to exit the wizard.
Launch Server Agent Manager
< Back
Finish
Cancel

Installing the Server Agent - Installation Complete

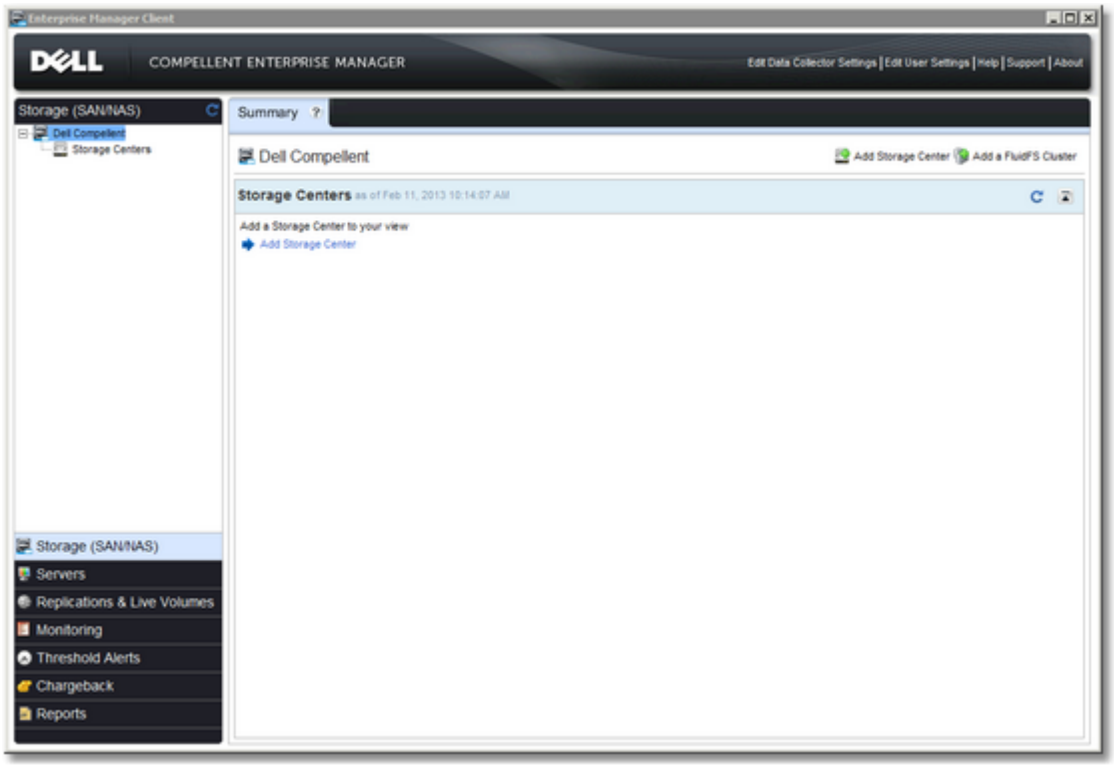
Connecting to Data Collector

The Enterprise Manager Client can be used to connect to the Data Collector to view and manage multiple Storage Centers:

1. On the desktop, double-click the **Enterprise Manager Client** shortcut. The **Login to Compellent Enterprise Manager Client** window appears.
2. Fill the following fields:
   - **User Name**: Enterprise Manager user that was created while installing Data Collector
   - **Password**: User's password
   - **Host/IP**: host name or IP address of the server that hosts the Data Collector.
   - **Web Server Port**: If you changed the Web Server Port during installation, enter the updated port.
   - Click **Log In**.

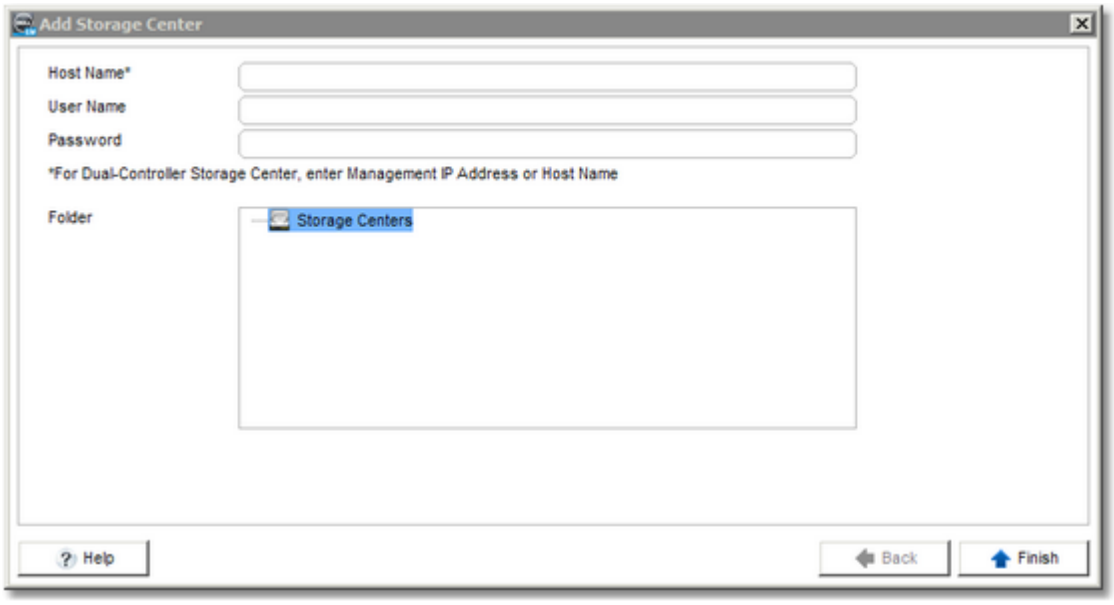
Configuring Enterprise Manager Client - Login Page

3. The Client connects to the Data Collector and displays the Storage (SAN/NAS) view. Click **Add Storage Center**.



Configuring Enterprise Manager Client

4. Fill the following fields:
   - **Host Name**: Host name or IP address of the Storage Center.
   - **User Name**: Name of an administrator user on the Storage Center.
   - **Password**: Password for the Storage Center user.



Configuring Enterprise Manager Client - Add Storage Center

5. Click **Finish**. The Storage Center appears in the list of Storage Centers.

Configuring Dell Compellent Enterprise Manager

1. On the desktop, double-click the **Enterprise Data Collector Manager** shortcut. The **Login to Data Collector** window appears.
2. Enter your credentials and click **Log In**.

Configuring Enterprise Manager Data Collector - Login Page

2. From Dell Compellent Enterprise Manager, you can:
   - Add Enterprise Manager users
   - Add Storage Center volumes
   - Add servers to Storage Centers
   - Add FluidFS clusters to Enterprise Manager
   - Configure email notifications
   - Set up remote Storage Centers and QoS
   - Configure replications and Live Volumes
   - Predefine your disaster recovery plan.

For more information, please refer to the Dell Compellent Enterprise Manager Administrator's Guide.

Integrating the ETL for BCO

Dell Compellent Enterprise Manager ETL for BMC Capacity Optimization is a connector specifically designed to interact with the BMC Capacity Optimization (BCO) environment. It relies on the BCO interface and features for integrating, managing and processing the performance metrics of your Dell systems.

Before installing, make sure that all the prerequisite operations have been properly completed (refer to the **Getting Started** chapter).

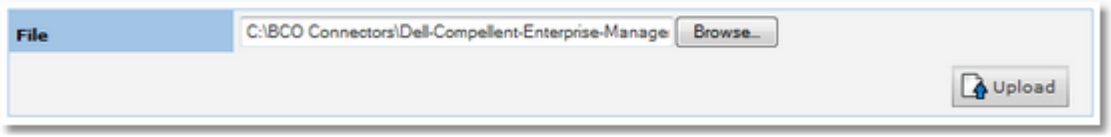
Installing Dell Compellent Enterprise Manager ETL for BMC Capacity Optimization

This section provides the step-by-step procedure to upload Dell Compellent Enterprise Manager ETL for BMC Capacity Optimization into the BCO Console. The upload procedure is quick and easy, as it relies on the ***Upload patch or additional package*** mechanism accessible in the BCO Console under the section **Administration >System >Maintenance**.

Uploading Dell Compellent Enterprise Manager ETL for BMC Capacity Optimization into the BCO Console

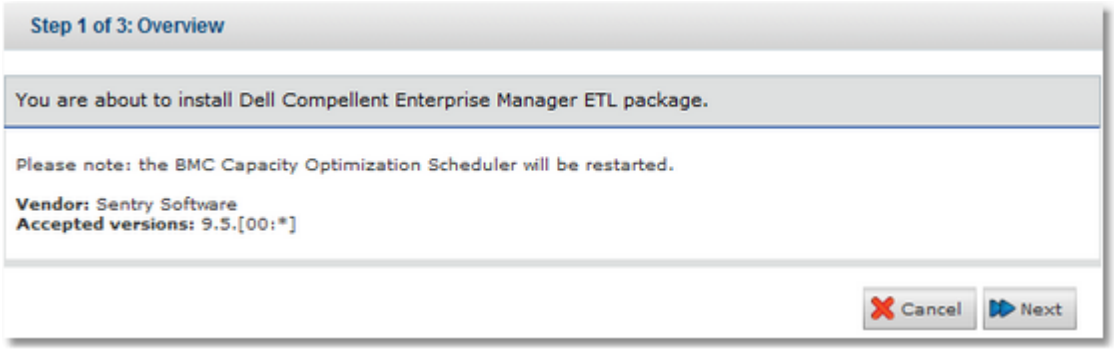
To upload Dell Compellent Enterprise Manager ETL for BMC Capacity Optimization into the BCO Console:

1. Access the BCO Console.
2. In the **Administration** tab, click **System > Maintenance.**
   - Verify the installation status of the already uploaded packages. If their status is "READY" or "RUNNING", wait for the installation to complete before proceeding.
   - At the bottom of the **Maintenance** page, locate the **Upload patch or additional package** file section:

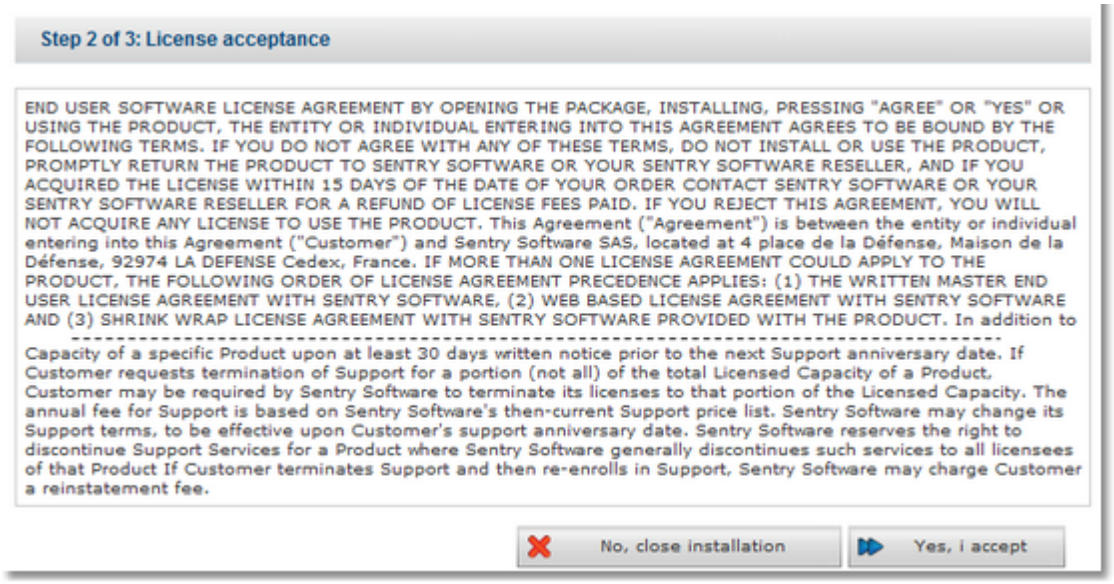


   - Click **Browse**.
   - Locate and select the file **Dell-Compellent-Enterprise-Manager-ETL-for-BCO-4.0.00.zip** designed for BMC Capacity Optimization v9.5
   - Click **Upload**.

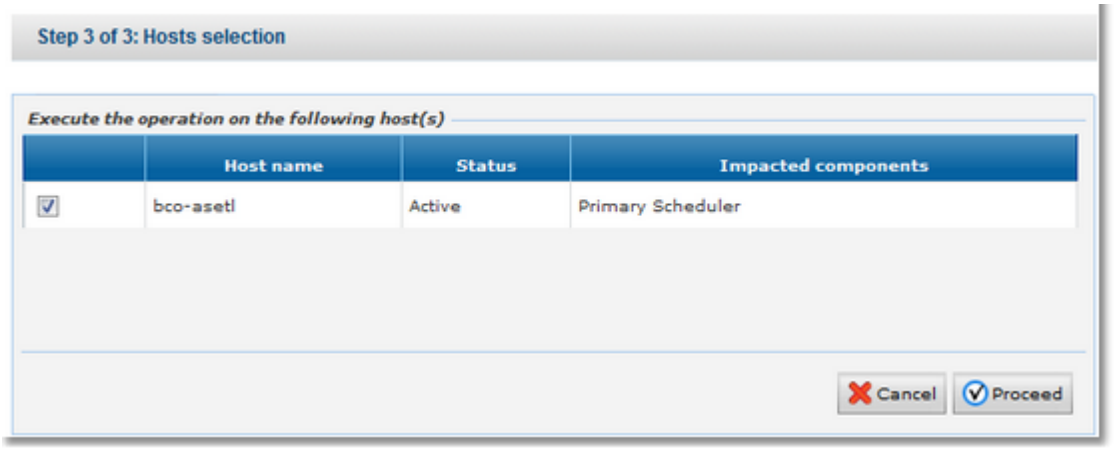
3. Read the **Overview** and click **Next** to continue.


Step 1 of 3: Overview
You are about to install Dell Compellent Enterprise Manager ETL package.
Please note: the BMC Capacity Optimization Scheduler will be restarted.
Vendor: Sentry Software
Accepted versions: 9.5.[00:*]
Cancel
Next

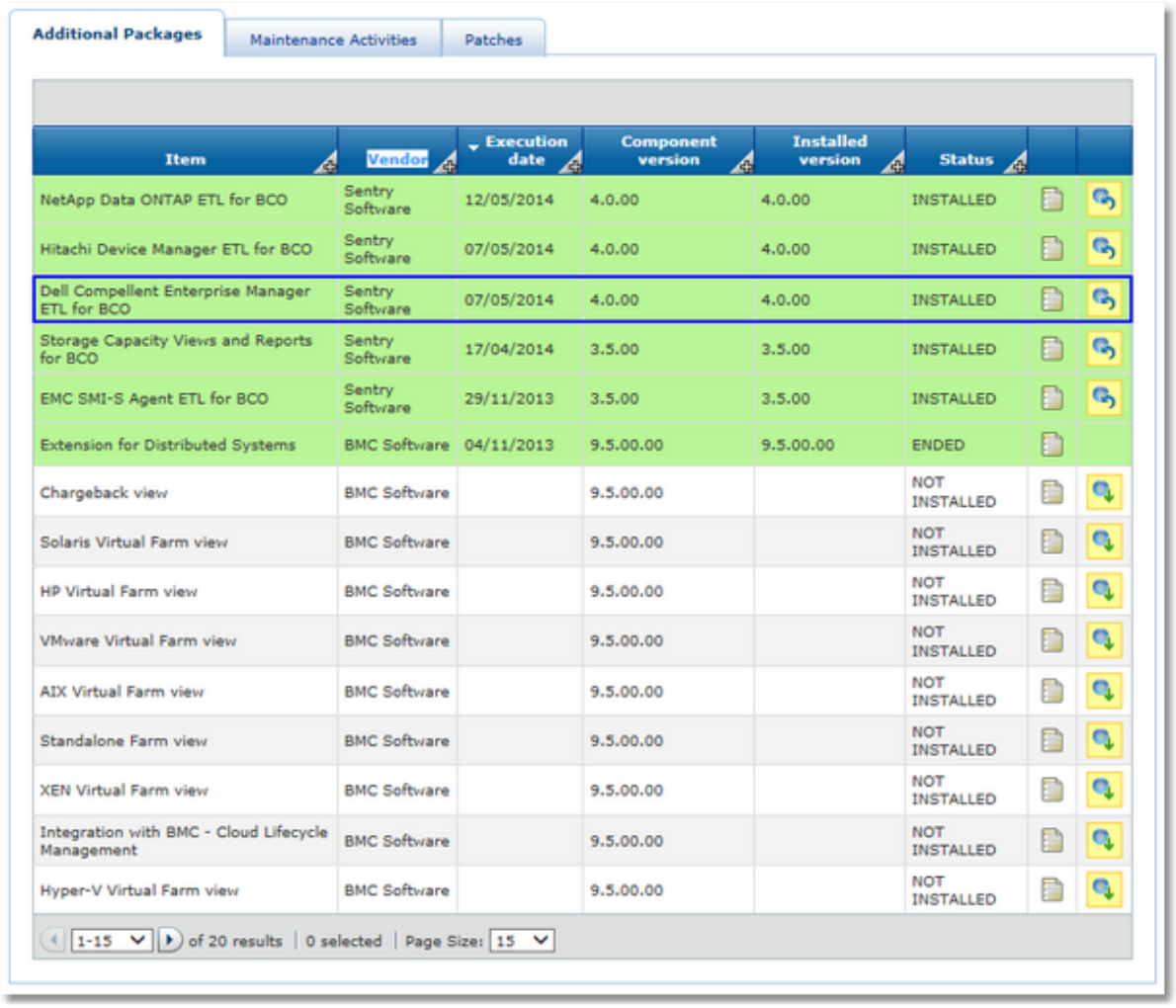
4. Read and accept the **End User License Agreement**.


Step 2 of 3: License acceptance
END USER SOFTWARE LICENSE AGREEMENT BY OPENING THE PACKAGE, INSTALLING, PRESSING "AGREE" OR "YES" OR USING THE PRODUCT, THE ENTITY OR INDIVIDUAL ENTERING INTO THIS AGREEMENT AGREES TO BE BOUND BY THE FOLLOWING TERMS. IF YOU DO NOT AGREE WITH ANY OF THESE TERMS, DO NOT INSTALL OR USE THE PRODUCT, PROMPTLY RETURN THE PRODUCT TO SENTRY SOFTWARE OR YOUR SENTRY SOFTWARE RESELLER, AND IF YOU ACQUIRED THE LICENSE WITHIN 15 DAYS OF THE DATE OF YOUR ORDER CONTACT SENTRY SOFTWARE OR YOUR SENTRY SOFTWARE RESELLER FOR A REFUND OF LICENSE FEES PAID. IF YOU REJECT THIS AGREEMENT, YOU WILL NOT ACQUIRE ANY LICENSE TO USE THE PRODUCT. This Agreement ("Agreement") is between the entity or individual entering into this Agreement ("Customer") and Sentry Software SAS, located at 4 place de la Défense, Maison de la Défense, 92974 LA DEFENSE Cedex, France. IF MORE THAN ONE LICENSE AGREEMENT COULD APPLY TO THE PRODUCT, THE FOLLOWING ORDER OF LICENSE AGREEMENT PRECEDENCE APPLIES: (1) THE WRITTEN MASTER END USER LICENSE AGREEMENT WITH SENTRY SOFTWARE, (2) WEB BASED LICENSE AGREEMENT WITH SENTRY SOFTWARE AND (3) SHRINK WRAP LICENSE AGREEMENT WITH SENTRY SOFTWARE PROVIDED WITH THE PRODUCT. In addition to
Capacity of a specific Product upon at least 30 days written notice prior to the next Support anniversary date. If Customer requests termination of Support for a portion (not all) of the total Licensed Capacity of a Product, Customer may be required by Sentry Software to terminate its licenses to that portion of the Licensed Capacity. The annual fee for Support is based on Sentry Software's then-current Support price list. Sentry Software may change its Support terms, to be effective upon Customer's support anniversary date. Sentry Software reserves the right to discontinue Support Services for a Product where Sentry Software generally discontinues such services to all licensees of that Product If Customer terminates Support and then re-enrolls in Support, Sentry Software may charge Customer a reinstatement fee.
No, close installation
Yes, i accept

5. Select the server on which the operation must be executed; that is the server on which the package will be saved. Click **Proceed** to continue.



6. A successful installation will result in a green line in the **Additional Packages** table.



In case of unsuccessful outcome (e.g. a yellow WARNING line), click the icon to inspect the deployment log.

7. Manually restart the scheduler service to complete the installation.

Restarting the Scheduler Service

A manual restart of the scheduler service is required to complete installation of Dell Compellent Enterprise Manager ETL for BMC Capacity Optimization:

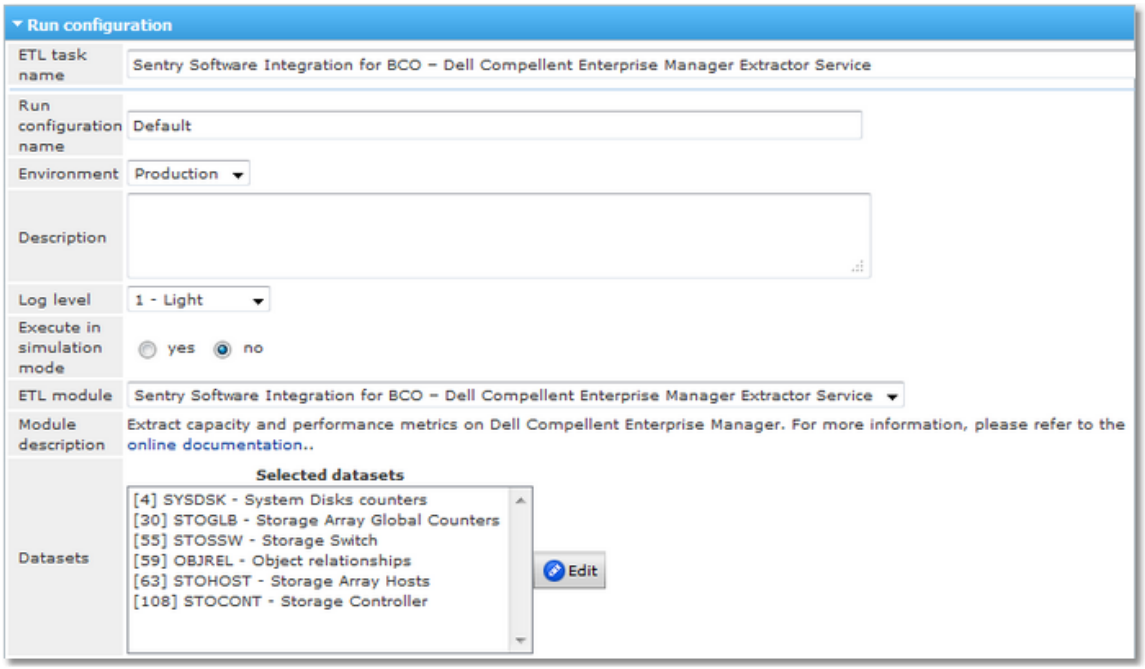
1. Open a shell command (SSH) on all the scheduler hosts and connect as **cpit** user
2. Navigate to the **BCO** home directory
   ```
   [cpit@bco ~]$ cd /opt/bmc/BCO
   ```
3. Execute the BCO script to restart the scheduler service
   ```
   [cpit@bco BCO]$ ./cpit restart scheduler
   ```

Configuring the ETL for BCO

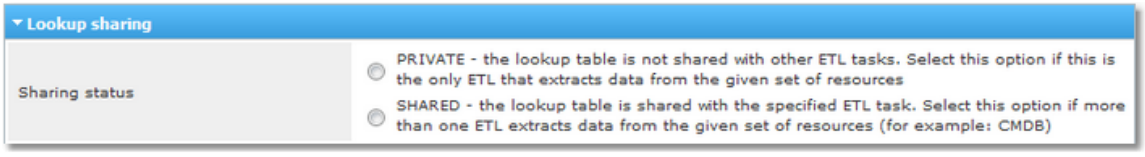
This chapter details every steps required to configure an ETL Service and add it as an ETL task responsible for extracting capacity and performance metrics on Dell storage systems from the Dell Compellent Enterprise Manager and feeding it into the BMC Capacity Optimization Data Warehouse.

To configure the ETL:

1. Access the configuration window:
   - In the **Administration** tab, click **ETL & System Tasks > ETL tasks**.
   - Press the **Add button**, and select **Add ETL**.
2. Expand the **Run configuration** menu:


Run configuration
ETL task name
Sentry Software Integration for BCO – Dell Compellent Enterprise Manager Extractor Service
Run configuration name
Default
Environment
Production
Description
Log level
1 - Light
Execute in simulation mode
yes
no
ETL module
Sentry Software Integration for BCO – Dell Compellent Enterprise Manager Extractor Service
Module description
Extract capacity and performance metrics on Dell Compellent Enterprise Manager. For more information, please refer to the online documentation..
Selected datasets
Datasets
[4] SYSDSK - System Disks counters
[30] STOGLB - Storage Array Global Counters
[55] STOSSW - Storage Switch
[59] OBJREL - Object relationships
[63] STOHOST - Storage Array Hosts
[108] STOCONT - Storage Controller
Edit

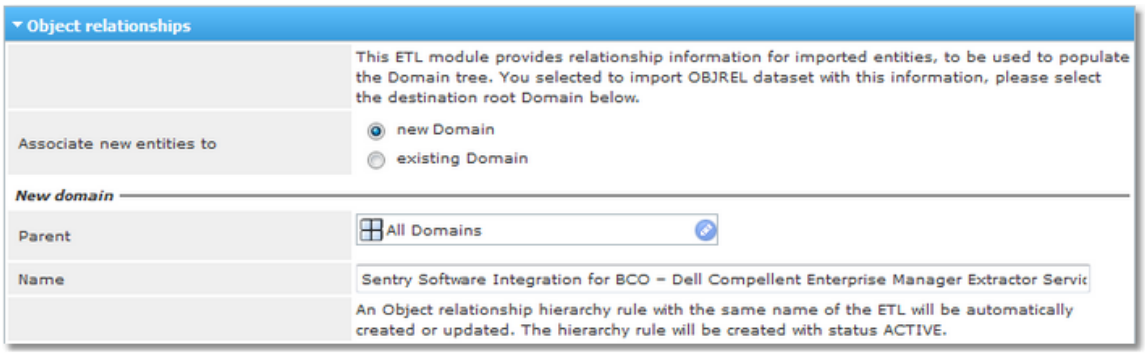
3. From the **ETL module** pull-down list, select **Sentry Software Integration for BCO - Dell Compellent Enterprise Manager Extractor Service**.
4. Click the **Edit** button to add all the available datasets:
   - In the **Available datasets** list, select the datasets to be added.
   - Click .
   - Click **Apply**.
5. Expand the **Lookup sharing** menu and select:


Lookup sharing
Sharing status
PRIVATE - the lookup table is not shared with other ETL tasks. Select this option if this is the only ETL that extracts data from the given set of resources
SHARED - the lookup table is shared with the specified ETL task. Select this option if more than one ETL extracts data from the given set of resources (for example: CMDB)

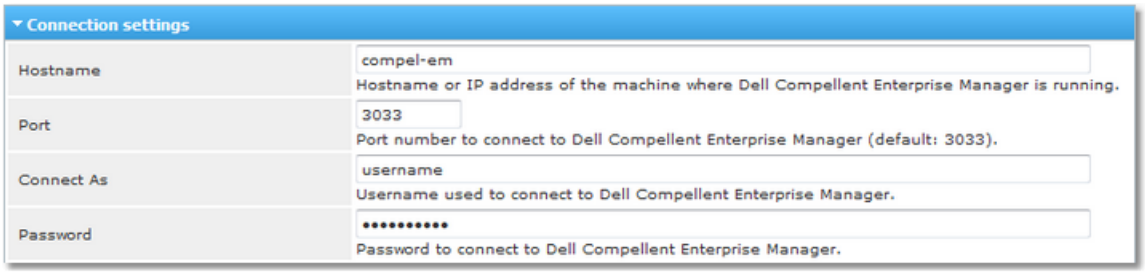
- **PRIVATE** if only this ETL will extract data from the specified resources.
- **SHARED** to avoid duplicates if several ETLs extract data from the same resources. You'll then

have to specify the ETL with which this ETL will share the information.

6. Expand the **Object relationship** menu to indicate the Domain tree the imported entities will populate:
   - choosing **new Domain** displays the domain default name: **Sentry Software Integration for BCO - Dell Compellent Enterprise Manager Extractor Service**. The default name is editable.
   - choosing **existing Domain** allows you to select a specific domain.


Object relationships
This ETL module provides relationship information for imported entities, to be used to populate the Domain tree. You selected to import OBJREL dataset with this information, please select the destination root Domain below.
Associate new entities to
new Domain
existing Domain
New domain
Parent
All Domains
Name
Sentry Software Integration for BCO – Dell Compellent Enterprise Manager Extractor Servic
An Object relationship hierarchy rule with the same name of the ETL will be automatically created or updated. The hierarchy rule will be created with status ACTIVE.

7. Expand the **Connection settings** menu:


Connection settings
Hostname
compel-em
Hostname or IP address of the machine where Dell Compellent Enterprise Manager is running.
Port
3033
Port number to connect to Dell Compellent Enterprise Manager (default: 3033).
Connect As
username
Username used to connect to Dell Compellent Enterprise Manager.
Password
••••••••••
Password to connect to Dell Compellent Enterprise Manager.

   - Enter the **hostname** or the **IP address** of the server where the Dell Compellent Enterprise Manager is running.
   - Indicate the **port number** used by the Dell Compellent Enterprise Manager (default: 3033).
   - Enter the username and password to connect to the Dell Compellent Enterprise Manager This username is set with the mandatory administrator's rights. If you wish to use a different username, make sure it has administrator's rights. For detailed information about the rights management, refer to the Dell Compellent Enterprise Manager documentation).
8. Click **Save**.

Customizing Volumes Monitoring

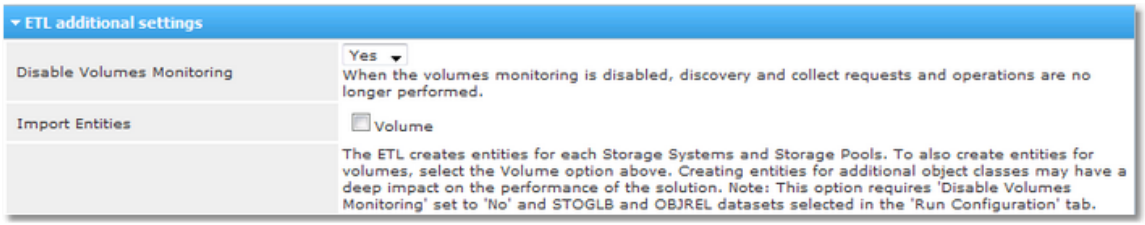
Discovering volumes and collecting their performance metrics are resource-intensive actions that can create extra workload on the system. To reduce the system resource consumption, administrators can disable or enable the volumes monitoring at will and fine-tune the creation of volume entities into the BCO environment

Disabling volumes monitoring

Disabling the monitoring of volumes suspends the discovery of all volumes until the volumes monitoring is re-enabled. Thus, volumes capacity and performance metrics are not collected. While the system resource consumption is therefore significantly reduced, valuable metrics are no longer displayed in the console. Additionally, when data is no longer collected, the calculation of other sources metrics may be impacted (refer to the Fine-tuning entities management section for detailed information).

To disable the monitoring of volumes:

1. Edit the **Dell Compellent Enterprise Manager ETL for BMC Capacity Optimization** Run Configuration.
2. Expand the **ETL additional settings** menu.


ETL additional settings
Disable Volumes Monitoring
Yes
When the volumes monitoring is disabled, discovery and collect requests and operations are no longer performed.
Import Entities
Volume
The ETL creates entities for each Storage Systems and Storage Pools. To also create entities for volumes, select the Volume option above. Creating entities for additional object classes may have a deep impact on the performance of the solution. Note: This option requires 'Disable Volumes Monitoring' set to 'No' and STOGLB and OBJREL datasets selected in the 'Run Configuration' tab.

Disabling Volumes Monitoring

3. From the **Disable Volumes Monitoring** pull-down list, select **Yes**.
4. Click **Save**.

The table below lists the datasets and their respective metrics that are no longer collected and therefore not displayed in the console when the volumes monitoring is disabled:

Dataset	Metrics
STOGLB	• ST_CONSUMED_CAPACITY_PCT (storage consumed capacity percentage) • ST_OVERSUBSCRIBED_CAPACITY (storage oversubscribed capacity) • ST_POOL_OVERSUBSCRIPTION_SITUATION (pool oversubscription situation) • ST_POOL_SUBSCRIBED_CAPACITY (pool subscribed capacity). • ST_POOL_SUBSCRIBED_CAPACITY_PCT (pool subscribed capacity percentage)
STOHOST	• BYHOST_ALLOCATED (allocated space by host) • BYHOST_SIZE (by host physical size)

Fine-tuning entities management

ETL Services manages data in two successive phases: the collect and the loading. Administrators can combine these tasks in order to adapt the amount of data to process with the workload that their system can handle. This typically depends on the database capacity and the server performance.

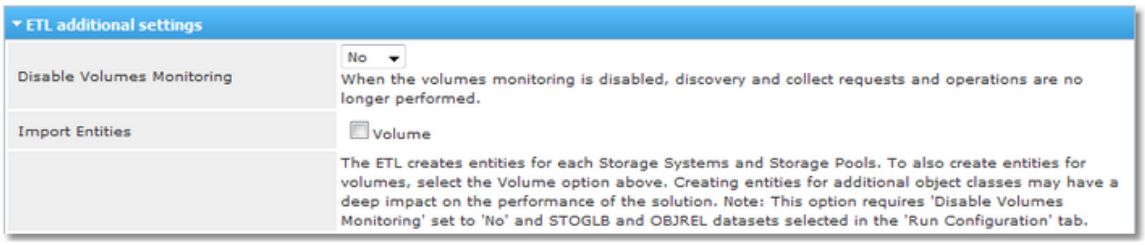
Volumes Monitoring	Import Entities	Result
No (enabled)	Checked	• All volumes are discovered and their metrics are collected and processed. • Volumes-related metrics are saved in the database, processed and loaded in the console. *Use this configuration if your system is powerful enough to manage all the volumes to monitor.*
No (enabled)	Unchecked	• All volumes are discovered and their metrics are collected and processed. • Volumes-related metrics are not loaded in the console. *Use this configuration if you wish to collect and process volume-related metrics without loading this information in the console. The collected data will however be used to calculate metrics for other sources, when required. This will reduce the resource consumption of your system.*
Yes (disabled)	N/A	• Volumes are not discovered. • Volumes-related metrics are not loaded in the console. *Use this configuration if the number of volumes to manage significantly slows down the system performance. Disabling the volumes monitoring prevents the discovery of any volumes and consequently do not allow the ETL to collect, save or process their data. Note that the calculation of metrics for other sources may be impacted (see reference guide).*

Enabling volumes monitoring

Enabling the monitoring of volumes resumes the discovery of all volumes. Thus, volumes capacity and performance metrics are properly collected. According to the number of volume to monitor, the system resource consumption may be significantly impacted.

To enable the monitoring of volumes:

1. Edit the **Dell Compellent Enterprise Manager ETL for BMC Capacity Optimization** Run Configuration.
2. Expand the **Run Configuration** menu to verify that the **STOGLB, STOHOST** and **OBJREL** datasets are selected.
3. Expand the **ETL additional settings** menu.


ETL additional settings
Disable Volumes Monitoring
No
When the volumes monitoring is disabled, discovery and collect requests and operations are no longer performed.
Import Entities
Volume
The ETL creates entities for each Storage Systems and Storage Pools. To also create entities for volumes, select the Volume option above. Creating entities for additional object classes may have a deep impact on the performance of the solution. Note: This option requires 'Disable Volumes Monitoring' set to 'No' and STOGLB and OBJREL datasets selected in the 'Run Configuration' tab.

Enabling Volumes Monitoring

4. From the **Disable Volumes Monitoring** pull-down list, select **No**.
5. Check the **Volume** box to make the volume entity appear in the Domain tree.

Please note that creating entities for additional object classes may have a deep impact on the performance of the application.

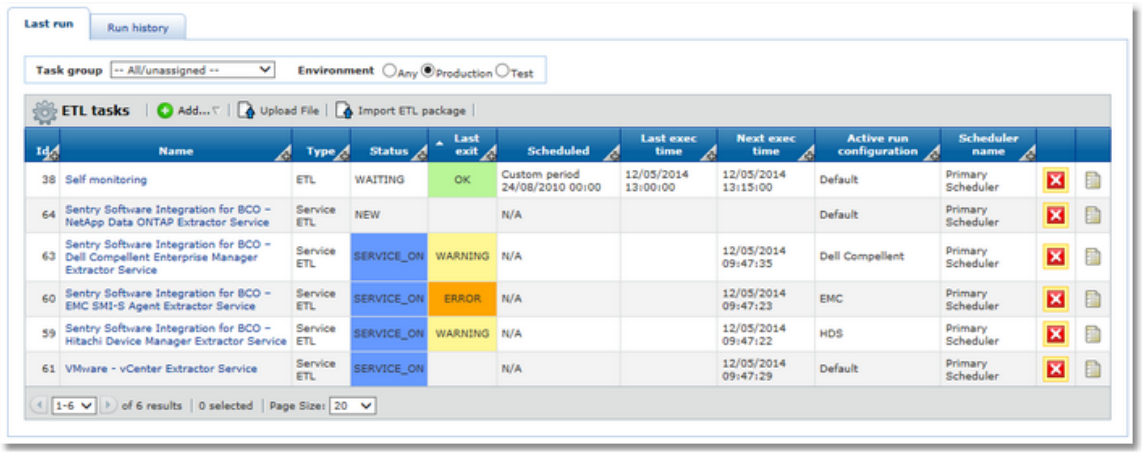
6. Click **Save**.

Setting the Collect Frequency

The collect frequency is the rate at which data is collected. The collect frequency is set to 15 minutes by default but can be modified to better suit your needs.

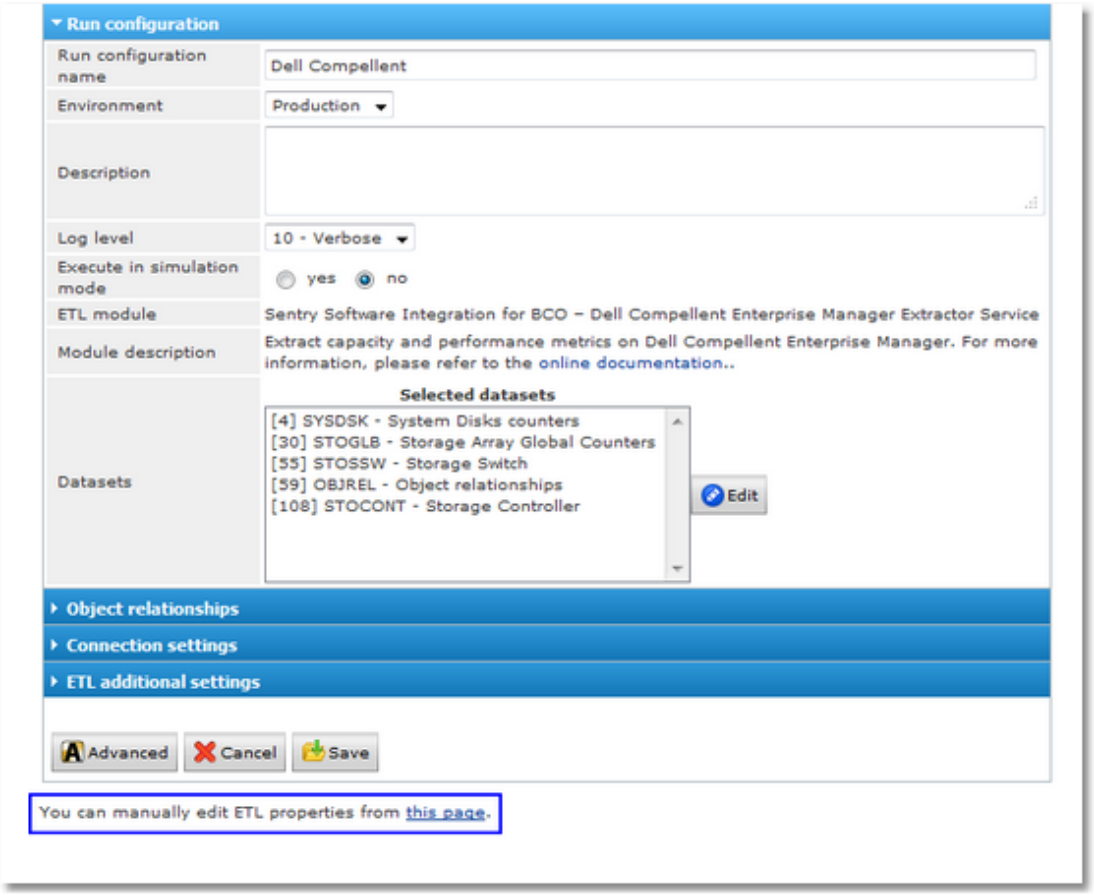
To set the collect frequency:

1. Edit the **Dell Compellent Enterprise Manager ETL for BMC Capacity Optimization** Run Configuration:
   - In the **Administration** tab, click **ETL & System Tasks > ETL tasks**.
   - Click the link **Sentry Software Integration for BCO - Dell Compellent Enterprise Manager Extractor Service**.


Last run
Run history
Task group
-- All/unassigned --
Environment
Any
Production
Test
ETL tasks
Add...
Upload File
Import ETL package
Id
Name
Type
Status
Last exit
Scheduled
Last exec time
Next exec time
Active run configuration
Scheduler name
38 Self monitoring ETL WAITING OK Custom period 24/08/2010 00:00 12/05/2014 13:00:00 12/05/2014 13:15:00 Default Primary Scheduler
64 Sentry Software Integration for BCO – NetApp Data ONTAP Extractor Service Service ETL NEW N/A Default Primary Scheduler
63 Sentry Software Integration for BCO – Dell Compellent Enterprise Manager Extractor Service Service ETL SERVICE_ON WARNING N/A 12/05/2014 09:47:35 Dell Compellent Primary Scheduler
60 Sentry Software Integration for BCO – EMC SMI-S Agent Extractor Service Service ETL SERVICE_ON ERROR N/A 12/05/2014 09:47:23 EMC Primary Scheduler
59 Sentry Software Integration for BCO – Hitachi Device Manager Extractor Service Service ETL SERVICE_ON WARNING N/A 12/05/2014 09:47:22 HDS Primary Scheduler
61 VMware - vCenter Extractor Service Service ETL SERVICE_ON N/A 12/05/2014 09:47:29 Default Primary Scheduler
1-6 of 6 results
0 selected
Page Size: 20

   - Click the **Stop** button to stop the service execution; then click the **Edit** button available in the **Run configurations** section.

2. Click the link provided at the bottom of the page **You can manually edit ETL properties from this page** to display a list of editable options.



3. Locate the **service.period** option, and enter the number of milliseconds corresponding to the frequency at which data will be collected.

Running Sentry Software Integration for BCO - Dell Compellent Enterprise Manager Extractor Service Task

The **Sentry Software Integration for BCO - Dell Compellent Enterprise Manager Extractor Service** task can be run manually to retrieve performance metrics.

The steps listed in this section are not mandatory and are required only if the ETLs are not already scheduled for execution.

To run the **Sentry Software Integration for BCO - Dell Compellent Enterprise Manager Extractor Service** task:

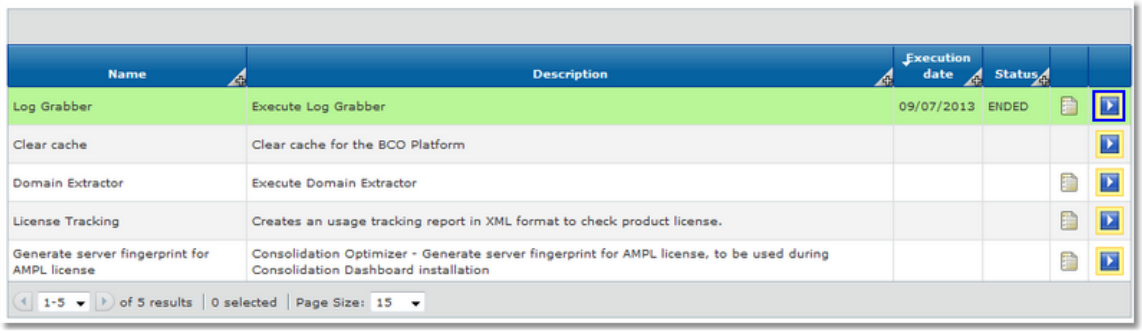
1. Access the BCO Console
2. In the **Administration** tab, select **ETL & System Tasks > ETL Tasks**.
3. Click to execute the **Sentry Software Integration for BCO - Dell Compellent Enterprise Manager Extractor Service** ETL task.

When the execution is complete, the value of the **Status** column in the ETL tasks table changes from **Waiting** to **Ended**.

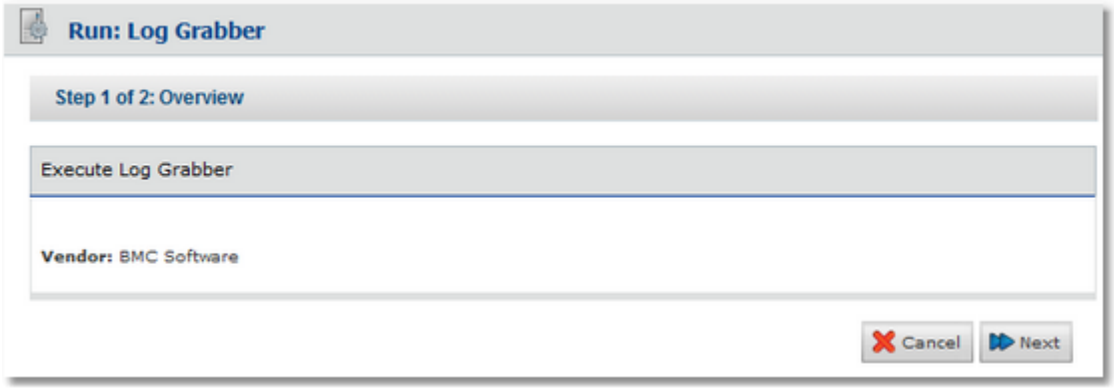
Generating Log Files

The Sentry Software support team may ask you to provide log files to better diagnose the nature of a problem when you need help on a specific matter. These log files can be obtained by executing the Log Grabber from the BCO console:

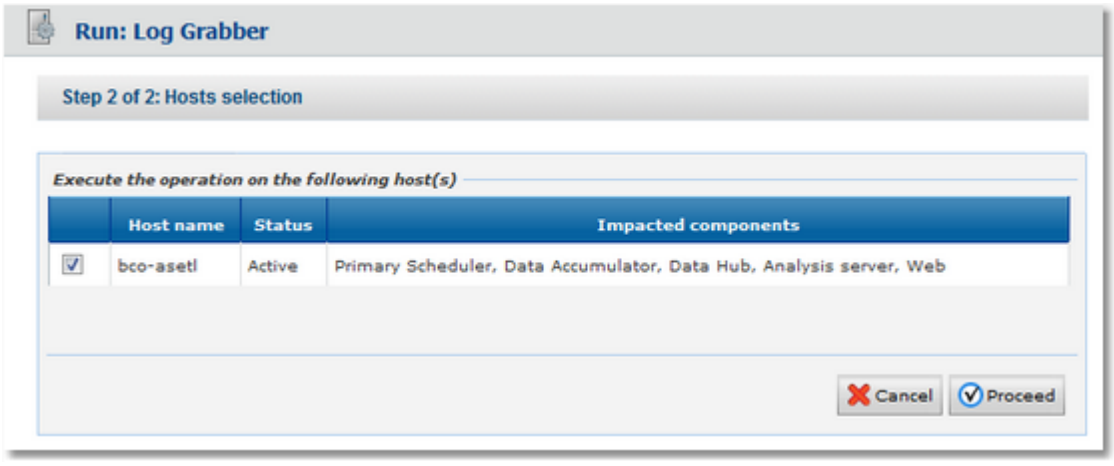
1. Access the BCO Console.
2. In the **Administration** tab, click **System > Maintenance**.
3. Open the **Maintenance Activities** tab.



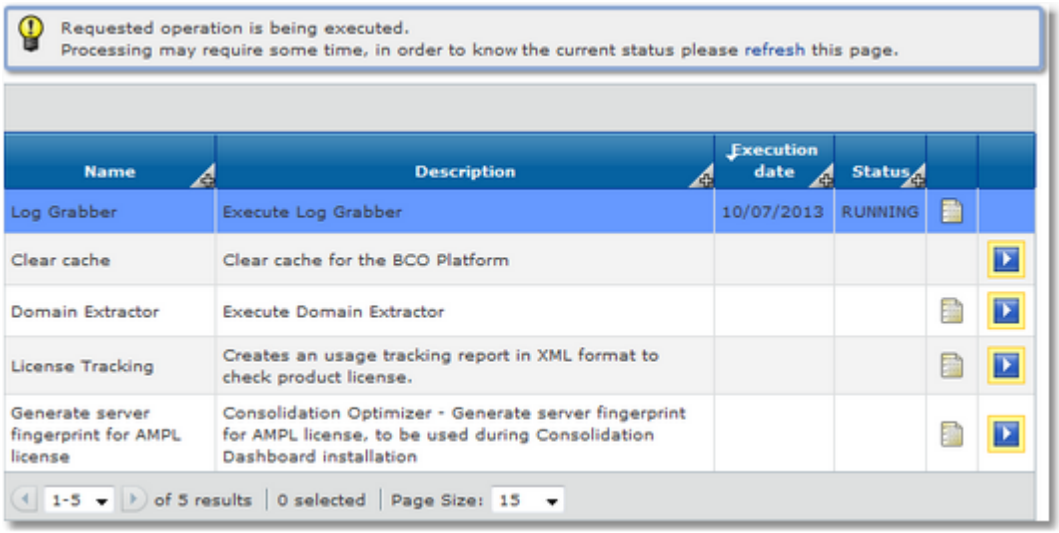
4. Click to execute the Log Grabber.



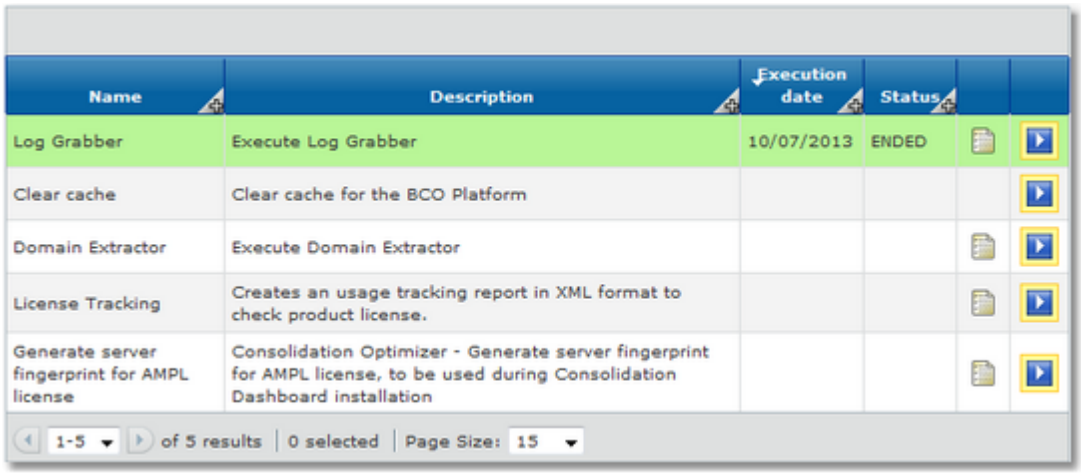
5. Click **Next**.



6. Select the host for which you wish to obtain logs and click **Proceed** to execute the Log Grabber.


Requested operation is being executed.
Processing may require some time, in order to know the current status please refresh this page.
Name
Description
Execution date
Status
Log Grabber
Execute Log Grabber
10/07/2013
RUNNING
Clear cache
Clear cache for the BCO Platform
Domain Extractor
Execute Domain Extractor
License Tracking
Creates an usage tracking report in XML format to check product license.
Generate server fingerprint for AMPL license
Consolidation Optimizer - Generate server fingerprint for AMPL license, to be used during Consolidation Dashboard installation
1-5
of 5 results
0 selected
Page Size: 15

7. Refresh the **Maintenance Activities** page to check the request status.



8. When the request status is "ENDED", click to view the deployment log.

9. Click to download the deployment log.

Reference Guide

This section provides detailed information on the performance metrics collected by the Sentry Software Integration for BCO - Dell Compellent Enterprise Manager Extractor Service from the Dell Compellent Enterprise Manager and made available in the BCO Console. Metrics are available in the following datasets.

- STOCONT Dataset Performance Metrics
- STOGLB Dataset Performance Metrics
- STOSSW Dataset Performance Metrics
- SYSDSK Dataset Performance Metrics

For additional information about datasets management, refer to BMC Capacity Optimization documentation.

[108] STOCONT Dataset Performance Metrics

Metrics are presented in table, where each column represents a particular variable, and each row corresponds to a given member of the STOCONT dataset.

Metric	Unit	Name	Description	Value Type
BYCONT_PORT_NUM	N/A	Number of available ports by controller	Number of available ports by controller. The subobject specifies the controller name.	Configuration data (string)
BYCONT_PROCESSOR_UTIL	PCT	Processor utilization by controller	Processor utilization by controller. The subobject specifies the controller name.	Percentage counter
BYCONT_RESPONSE_TIME	MILLIS	Response time by controller	Response time by controller. The subobject specifies the controller name.	Elapsed time
BYCONT_TRANSFER_RATE	BYTE/S	Transfer rate by controller	Transfer rate by controller. The subobject specifies the controller name.	A frequency, in events/sec

Additional Columns

Column Name	Unit	Name	Description
CONTNM	N/A	Storage controller name	Storage controller name.
DS_SYSNM	N/A	System name in the Datasource	The name of the system as in the Datasource (for lookup).
DURATION	S	Duration	Duration of the sample.
SYSNM	N/A	System name	The name of the system proposed for identification in BMC Capacity Optimization; if absent, the DS_SYSNM is used.
SYSTYPENM	N/A	Object type	Object type name.
TS	N/A	Timestamp	Start timestamp of the sample [YYYY-MM-DD HH:MI:SS].

For detailed information about datasets, refer to the BMC Capacity Optimization documentation.

[30] STOGLB Dataset Performance Metrics

Metrics are presented in a table, where each column represents a particular variable, and each row corresponds to a given member of the STOGLB dataset.

Metric	Entity	Unit	Name	Description	Value Type
ST_AVAILABLE_CAPACITY	Storage Area Network, Storage Pool	BYTES	Available Capacity	Capacity not consumed (for storage systems: unused raw space plus available capacity in storage pools)	Negative accumulation counter
ST_AVAILABLE_CAPACITY_PCT	Storage Pool	PCT	Available Capacity Percentage	Percentage of the storage capacity that is not consumed	Percentage counter
ST_AVAILABLE_FOR_STORAGE_POOLS	Storage Area Network	BYTES	Available Capacity for Storage Pools	Raw space available for storage pool creation	Negative accumulation counter
ST_AVAILABLE_IN_STORAGE_POOLS	Storage Area Network	BYTES	Available Capacity in Storage Pools	Sum of space not consumed in all storage pools	Negative accumulation counter
ST_CAPACITY	Storage Area Network, Storage Pool	BYTES	Storage Capacity	Total capacity (for storage systems: unused raw space plus sum of the capacity for all storage pools)	Generic counter, absolute value
ST_CONFIG_SIZE	Storage Pool	BYTES	Storage Configured Space	Overall size of the component (for a storage system, this value is the sum of the raw size of all disks; for a storage pool this value is the external size)	Generic counter, absolute value
ST_CONSUMED_CAPACITY	Storage Area Network, Storage Pool	BYTES	Storage Consumed Capacity	Actually consumed capacity	Generic counter, absolute value
ST_CONSUMED_CAPACITY_PCT*	Storage Area Network, Storage Pool	PCT	Storage Consumed Capacity Percentage	Percentage of capacity actually consumed	Percentage counter
ST_OVERSUBSCRIBED_CAPACITY*	Storage Area Network, Storage Pool	BYTES	Storage Oversubscribed Capacity	Storage subscribed capacity exceeding the actual capacity of the component	Generic counter, absolute value

Metric	Entity	Unit	Name	Description	Value Type
ST_POOL_OVERSUBSCRIPTION_SITUATION*	Storage Pool		Pool Oversubscription Situation	Identify the over-subscribed pools in danger i.e. thin pools where Subscribed Capacity Percentage is greater than 100 % and the Consumed Capacity Percentage crosses the threshold	Configuration data (string)
ST_POOL_SUBSCRIBED_CAPACITY*	Storage Pool	BYTES	Pool Subscribed Capacity	Sum of the host visible capacity for all volumes in the storage pool. Can be greater than the actual capacity of the storage pool for over-subscribed thin pools.	Configuration data (string)
ST_POOL_SUBSCRIBED_CAPACITY_PCT*	Storage Pool	PCT	Pool Subscribed Capacity Percentage	Subscribed capacity, in percentage of the capacity of the storage pool. Can exceed 100% for thin pools, therefore called oversubscribed	Percentage counter
ST_POOL_TYPE	Storage Pool		Array Pool Type	Type of the pool	Configuration data (string)
ST_SID	Storage Area Network		Storage Device Unique Identifier	Unique identifier of the storage device	Configuration data (string)
ST_SIZE	Storage Area Network	BYTES	Storage Size	Sum of the host visible capacity for all volumes in the storage pool. Can be greater than the actual capacity of the storage pool for over-subscribed thin pools	Generic counter, absolute value
ST_SYSTEM_BANDWIDTH	Storage Area Network	BYTE/S	System Bandwidth	Bandwidth available in storage system	Configuration data (string)
ST_SYSTEM_BANDWIDTH_UTIL	Storage Area Network	PCT	System Bandwidth Utilization	Bandwidth consumed in storage system	Percentage counter
ST_SYSTEM_MODEL	Storage Area Network		Storage Array Model	Model of the system	Configuration data (string)
ST_SYSTEM_PORT_NUM	Storage Area Network		Storage Array Port Number	Total number of ports	Configuration data (string)
ST_SYSTEM_SUBSCRIBED_CAPACITY	Storage Area Network	BYTES	Storage Subscribed Capacity	Sum of the host visible capacity for all volumes. Can be greater than the actual capacity of the storage system with over-subscribed thin pools	Generic counter, absolute value
ST_SYSTEM_TRANSFER_BYTE_RATE	Storage Area Network	BYTE/S	System Transfer Byte Rate	Total data traffic (in and out, read and write)	A frequency, in events/sec
ST_SYSTEM_VENDOR	Storage Area Network	BYTES	Vendor	Vendor	Configuration data (string)

Metric	Entity	Unit	Name	Description	Value Type
ST_VOLUME_CONSUMED_CAPACITY	Storage - Volume	BYTES	Volume Consumed Capacity	Amount of capacity that has been actually consumed by the host (for thin volumes, this value will typically be less than the host visible capacity; for traditional volumes this value always equals the host visible capacity)	Positive accumulation counter
ST_VOLUME_CONSUMED_CAPACITY_PCT	Storage - Volume	PCT	Volume Consumed Capacity Percentage	Percentage of the volume subscribed capacity that has been actually consumed by the host. Will be typically less than 100% for thin volumes. Will be exactly 100% for all traditional volumes	Percentage counter
ST_VOLUME_HOST_VISIBLE_CAPACITY	Storage - Volume	BYTES	Host Volume Visible Capacity	Amount of capacity that has been subscribed and can be "seen" by the host	Configuration data (string)
ST_VOLUME_MAPPED	Storage - Volume		Volume Mapped	Whether the LUN is mapped to at least one host	Configuration data (string)
ST_VOLUME_RAID_LEVEL	Storage - Volume		Volume RAID Level	RAID level of the volume	Configuration data (string)
ST_VOLUME_RESPONSE_TIME	Storage - Volume	MILLIS	Volume Response Time	Average time taken by the controller to complete read and write requests during the polling period	Elapsed time
ST_VOLUME_TIME_SINCE_LAST_ACTIVITY	Storage - Volume		Volume Time Since Last Activity	Number of days since the last read or write operation has been observed on the monitored volume.	Configuration data (string)
ST_VOLUME_TRANSFER_BYTE_RATE	Storage - Volume	BYTE/S	Volume Transfer Byte Rate	Data traffic (read and write) on the volume	A frequency, in events/sec

**These metrics will no longer be collected if volumes monitoring is disabled.*

Additional Columns

Column Name	Unit	Name	Description
DS_SYSNM	N/A	System name in the Datasource	The name of the system as in the Datasource (for lookup)
DURATION	S	Duration	Duration of the sample (in seconds)
SYSNM	N/A	Storage name	The name of the storage system
SYSTYPENM	N/A	Object type	Object type name
TS	N/A	Timestamp	Start timestamp of the sample [YYYY-MM-DD HH:MI:SS]

For detailed information about datasets, refer to the BMC Capacity Optimization documentation.

[63] STOHOST Dataset Performance Metrics for BCO

Metrics are presented in table, where each column represents a particular variable, and each row corresponds to a given member of the STOHOST dataset.

Metric	Unit	Name	Description	Value Type
BYHOST_ALLOCATED*	BYTES	Allocated Space by Host	Allocated Space by Host in Bytes	Positive accumulation counter
BYHOST_SIZE*	BYTES	By Host Physical Size	Physical capacity by host	Positive accumulation counter

**These metrics will no longer be collected if volumes monitoring is disabled.*

Additional Columns

Column Name	Unit	Name	Description
DS_SYSNM	N/A	System name in the Datasource	The name of the system as in the Datasource (for lookup)
DURATION	S	Duration	Duration of the sample (in seconds)
GOLEVELS	N/A	Grouping Object Levels	Levels for populating a grouping object, colon separated
SUBOBJNM	N/A	Host name	The name of the host
SYSNM	N/A	Storage name	The name of the storage system
SYSTYPENM	N/A	Object type	Object type name
TS	N/A	Timestamp	Start timestamp of the sample [YYYY-MM-DD HH:MI:SS]

For detailed information about datasets, refer to the BMC Capacity Optimization documentation.

[55] STOSSW Dataset Performance Metrics for BCO

Metrics are presented in a table, where each column represents a particular variable, and each row corresponds to a given member of the STOSSW dataset.

Metrics	Unit	Name	Description	Val Type
BYPORT_ADDRESS	N/A	Storage switch port address	Storage switch port address.	Configuration data (string)
BYPORT_BANDWIDTH	BIT/S	Bandwidth of the storage switch port	Bandwidth of the storage switch port.	Configuration data (string)
BYPORT_BANDWIDTH_UTIL	PERCENTAGE	Bandwidth utilization of the storage switch port	Bandwidth utilization of the storage switch port.	Percentage counter
BYPORT_BYTE_RATE	BYTE/S	Input/output traffic rate for the port	Input/output traffic rate for the port.	A frequency, in events/sec
BYPORT_CONTROLLER_NAME	N/A	Storage switch port controller name	Storage switch port controller name.	Configuration data (string)
BYPORT_TYPE	N/A	Storage switch port type	Storage switch port type.	Configuration data (string)

Additional Columns

Column Name	Unit	Name	Description
DS_SYSNM	N/A	System name in the Datasource	The name of the system as in the Datasource (for lookup).
DURATION	S	Duration	Duration of the sample (in seconds).
GOLEVELS	N/A	Grouping Object Levels	Levels for populating a grouping object, colon separated.
LOCATIONNM	N/A	Location Name	Physical location of the measured object; if absent, assumed UNKNOWN.
PORTNM	N/A	Storage switch port name	Storage switch port name.
SYSNM	N/A	System name	The name of the system proposed for identification in BMC Capacity Optimization; if absent, the DS_SYSNM is used.
SYSTYPENM	N/A	Object type	Object type name.
TS	N/A	Timestamp	Start timestamp of the sample [YYYY-MM-DD HH:MI:SS].

For detailed information about datasets, refer to the BMC Capacity Optimization documentation.

[4] SYSDSK Dataset Performance Metrics for BCO

Metrics are presented in a table, where each column represents a particular variable, and each row corresponds to a given member of the SYSDSK dataset.

Metrics

Metrics	Unit	Name	Description	Val Type
BYDISK_MODEL	N/A	Model by Disk	Model of the Disk.	Configuration data (string)
BYDISK_READ_RATE	BYTE/S	Disk Read Rate by Disk	The average bytes per second read from this disk device during the interval. The sub-object specifies the disk id.	A frequency, in events/sec
BYDISK_RESPONSE_TIME	MILLIS	Disk Response Time	The average time (in milliseconds) for I/O requests issued to the device to be served. This includes the time spent by the requests in queue and the time spent servicing them.	Generic counter, absolute value, weighted
BYDISK_SIZE	BYTES	Size by Disk	Disk size (bytes).	Configuration data (string)
BYDISK_TRANSFER_RATE	BYTE/S	Disk Transfer Rate by Disk	The average bytes per second transferred to or from this disk device during the interval. The sub-object specifies the Disk id.	A frequency, in events/sec
BYDISK_WRITE_RATE	BYTE/S	Disk Write Rate by Disk	The average bytes per second written to this disk device during the interval. The sub-object specifies the disk id.	RATE

Additional Columns

Column Name	Unit	Name	Description
DS_SYSNM	N/A	System name in the Datasource	The name of the system as in the Datasource (for lookup).
DSKNM	N/A	Disk Name	The name of the disk.
DURATION	S	Duration	Duration of the sample (in seconds).
GOLEVELS	N/A	Grouping Object Levels	Levels for populating a grouping object, colon separated.
SYSNM	N/A	System name	The name of the system proposed for identification in BMC Capacity Optimization; if absent, the DS_SYSNM is used.
SYSTYPENM	N/A	Object type	Object type name.
TS	N/A	Timestamp	Start timestamp of the sample [YYYY-MM-DD HH:MI:SS].
WEIGHT	N/A	Weight	The weight of the sample.

For detailed information about datasets, refer to the BMC Capacity Optimization documentation.

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